ARGUS 141
Manual

Version: 1.40 / **EN**

Note:.
The basic ARGUS package always includes support for at least one DSL interface with a variety of functions and tests. Support for other interfaces (e. g. a second DSL interface) and functions is optional (see the options in the datasheet). Consequently, depending on the scope of the functions delivered, certain menu items may be hidden.

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1 Introduction

The ARGUS 141 tests VDSL2 and ADSL. This all-rounder with a color display offers support for VDSL2 (all profiles) and even ADSL (Annex A, B and M); all integrated into a single handheld device. Separate chipsets for ADSL and VDSL2 ensure optimum performance on both interfaces. It also offers extensive statistics functions and evaluates voice quality in accordance with a variety of techniques, such as using MOS tests (R-factor).

In addition the ARGUS 141 is also well equipped for checking Internet connections as it has IP ping, trace route and download tests.

Rounding out the package, the ARGUS can operate in xDSL bridge and PC replacement mode. In view of the above set of features, it is obvious that the ARGUS 141 offers a wide range of measurement functions for use on xDSL interfaces. Nonetheless, it should not be overlooked that this extensive set of features has been packed into an small, handy device; one that is not only very compact and convenient to use on location – wherever that location might be – but one that is also ready for use in no time.

Ease of Use
The ARGUS 141 is also extremely easy to use. It has a large (320 x 240 pixel) color display and it is operated by the use of softkeys and includes a USB client interface. The tester uses a high-powered, long-life lithium-ion (rechargeable) battery pack.

Software updates can be downloaded to a PC free of charge and then loaded into the ARGUS at any time. They are available at www.argus.info/en/service.

An overview of a few of the important ARGUS functions:

xDSL tests (ADSL, ADSL2 and ADSL2+, VDSL2)

- **Synchronisation with determination of the connection parameters and error counters**
- **PPP login, xDSL bridge and PC replacement mode**

xDSL tests

- **IP tests**
  - IP ping and trace route tests
  - Download tests (HTTP)
- **VoIP test**
  - Telephony function
  - Quality assessment

Should you have any further questions, please contact us:

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2 Safety Instructions

The ARGUS may only be used with the included accessories. Usage of other accessories may lead to erroneous measurements and may even cause damage to the ARGUS and the connected installation. The ARGUS is only to be used in accordance with the instructions in this documentation. Any other usage may result in bodily injury and destruction of the ARGUS.

- Before connecting the ARGUS to an access make certain that the voltages on the access are not high enough to be dangerous or outside the specified range of the ARGUS or its accessories. You must also taken into account the fact that the voltage may vary while the ARGUS is connected to the access.
- Regardless of the interface or access, use the ARGUS only for its intended purpose.
- Voltages in excess of 50 V AC or 120 V DC can cause mortal injury.
- Never attempt a measurement with the case open!
- The ARGUS is not watertight. Protect the ARGUS from exposure to water!
- Before replacing the battery pack, disconnect all the test leads and switch the ARGUS off.
- Unplug the power supply from the mains, once the ARGUS is switched off and is no longer in use (for example after recharging the accumulators)!
- The ARGUS may only be used by trained personnel.
- In connection with the lithium ion battery pack, please observe the following notes regarding safety and transport.

Return and environmentally acceptable disposal

The RoHS (EU Directive on the “Restriction of Hazardous Substances”) guidelines, which restrict the use of certain hazardous substances in electrical and electronic equipment, apply in eight of the ten categories of the WEEE (EU Directive on “Waste Electrical and Electronic Equipment”) guidelines. Devices which are in Category 9 “Monitoring and Control Instruments” are currently excluded from the scope of the Directive. The ARGUS products fall into Category 9 and are thus not subject to the RoHS guidelines. Nonetheless, we have voluntarily complied with all of the RoHS guidelines since 1 January 2007.
In compliance with WEEE 2002/96/EU and the German Electrical and Electronic Equipment Act („ElektroG - Elektro- und Elektronikgesetz“), we began marking our testers in October 2005 with the following symbol

( ) (DIN EN 50419).

In other words, the ARGUS and its accessories may not be disposed of in the household waste. Regarding the return of old equipment, please contact our Service department.

2.1 Lithium Ion Battery Pack - Safety Instructions

Transport

The battery pack has been tested in accordance with the UN recommendations (ST/SG/AC.10/11/Rev. 4, Part III, Subsection 38.3). Protective measures have been implemented to prevent harm if it is exposed to excessive pressure, short-circuits, dangerous reverse currents or other destructive influences. However, since the amount of lithium contained in the battery pack is in any case less than the current threshold amount, neither the battery pack itself nor the ARGUS in which it is installed are subject to the international hazardous goods regulations. Nonetheless, these regulations may apply if several battery packs are transported at the same time. For more information, please contact us.

The protective features of the battery pack may be harmed if the following instructions are not observed. In this case extremely high currents and voltages may result, which could lead to abnormal chemical reactions, leaking acid, overheating, smoke, or an explosion and/or fire. Furthermore, if the user does not observe and comply with these instructions both the performance and service life may suffer.

Safety Instructions and Warnings

1 Do not disassemble or short-circuit the battery pack.
2 Do not put the battery pack in a fire or heat it higher than > 60 °C (+140 °F).
3 Keep the battery pack dry - do not let it get wet or damp.
4 Do not charge the battery pack at temperatures below 0 °C (+32 °F) or above +40 °C (+104 °F).
5 The battery pack may only be charged using the associated ARGUS or a charger approved by intec.
6 Do not damage the battery pack with a sharp object.
7 Do not throw the battery pack or expose it to shocks or impacts.
8 If a battery pack is damaged or deformed, do not use it.
9 Like any battery, the battery pack has two poles (plus and minus). To prevent damage, make certain that it is correctly connected (polarity) to the ARGUS or charger.
10 The battery pack may only be connected to the associated ARGUS or charger in the intended manner.
11 The battery pack may not be directly connected to the output of a plug-in power supply, an automobile cigarette lighter or similar power source.
12 The battery pack may only be used together with an ARGUS.
13 The battery pack may not be connected to, or stored or transported with metallic objects.
14 Do not expose the battery pack to high electrostatic forces.

15 The battery pack may not be used in combination with primary (non-rechargeable) batteries, nor may it be charged or discharged together with other rechargeable batteries.

16 If the battery pack is still not properly charged when the charging time has elapsed, do not charge it again.

17 Do not expose the battery pack to excessive pressure.

18 If the battery pack leaks acid or if it emits an odor, keep it away from open fires.

19 If the battery pack emits an odor or heats up, becomes discolored or misshapen, or if there are any other indications of that it has malfunctioned while it is in use or being charged or while it stored, remove the battery pack from the ARGUS or charger immediately and do not use it again.

20 If the battery pack leaks acid, make certain that you do not get this acid in your eyes or on your skin. In event that you get this acid in your eyes or on your skin, rinse the affected area immediately with clean water. Do not rub the affected area. In either case, seek medical care immediately. Otherwise, permanent injury may result.

21 The battery pack must be kept out of reach of children.

22 Please read the manual and corresponding security instructions before using the battery pack.

23 If you find that the battery pack emits an odor, or is rusty or appears to be in anything other perfect condition before you first use it, please contact intec to determine how to proceed.

3 General Technical Data

Tester specifications:

Dimensions / Weight	**Inputs / Outputs**
Height: 235 mm (9.25 in) Width: 97 mm (3.80 in) Depth: 55 mm (2.20 in) Weight approx. 710 g (1.6 lbs) (incl. battery pack)	- RJ-45 for xDSL - RJ-45 10/100 BaseT (bridge mode) - USB-B jack, USB client interface
Keypad	
25 Keys	
LCD display	**Temperature ranges**
LCD color display with switchable background lighting, 320 x 240 pixels	Charging between: 0 °C (+32 °F) to +40 °C (+104 °F) Operating Temperature: 0 °C (+32 °F) to +50 °C (+122 °F) Storage temperature: -20 °C (-4 °F) to +60 °C (+140 °F) Humidity: up to 95 % relative humidity, non-condensing
	Power supply
	Lithium ion battery pack, rated voltage 7.2 V (observe and comply with the safety instructions) or 12 V / 1500 mA ARGUS electronic plug-in power supply
	Other information
	User safety: EN61010-1 RoHS compliance pursuant to WEEE (EU Directive on Waste of Electrical and Electronic Equipment) Quality management in accordance with DIN EN ISO 9001

Supported standards:

ADSL (Line): ITU-T G.992.1, Annex A (ADSL) ITU-T G.992.2, Annex A (G.lite) ITU-T G.992.3, Annex A (ADSL2) ITU-T G.992.5, Annex A (ADSL2+) ITU-T G.992.1, Annex B (ADSL) ITU-T G.992.3, Annex B (ADSL2) ITU-T G.992.5, Annex B (ADSL2+) ITU-T G.992.3, Annex M (ADSL2) ITU-T G.992.5, Annex M (ADSL2+) ANSI T1.413 **VDSL (Line):** ITU-T G.993.2 (VDSL2) Profile: 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a **Ethernet:** IEEE 802.3 - 10 Base-T - 100 Base-T Auto Negotiation Auto MDIX	 **Line:** DC voltage: max. +200 V DC AC voltage: max. 120 V AC at a maximum of 50/60 Hz

4 Operation - A Brief Guide

Power key

- Switch the ARGUS on
- To start up again after a power down (adjustable see Page 124)
- Switch on the display backlighting
  In battery mode to save power, the backlighting will switch off automatically after an adjustable period of time (see Page 124).
  To switch off the ARGUS (must be pressed somewhat longer)
- After being idle for a period of time which can be set (for example after 10 minutes), the ARGUS will shutdown automatically if it is running in battery mode (see Page 124). If the ARGUS is connected to its power supply, it will automatically charge its battery pack when it is switched off (see page 127).

Confirmation key

- Open menu
- Open the next display
- Start the test
- Confirm the entry

Return key

- The ARGUS will return to the previous display and ignore any entries made at this level, e.g. changes to the settings
- Cancel test

Cursor keys

- Move the cursor through the display lines (vertical cursor keys)
- Move the cursor through a display line (horizontal cursor keys)
- Select a menu
- Select a function or a test

Telephony

xDSL (Access mode xTU-R)

- Start VoIP telephony

Layer 1 measurement

- xDSL access: display the connection parameters

Numerical keypad

- Entry of the digits 0 to 9, letters and special characters
- Direct function call (for an example, see Page 29)

Softkeys

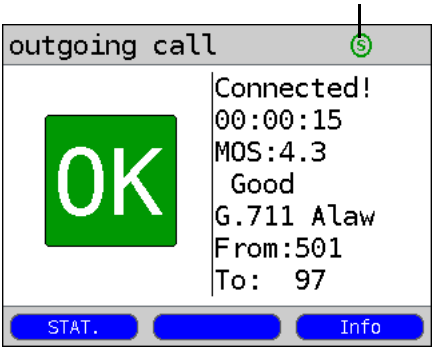
- The function of the 3 softkeys varies with the situation. The current function of each softkey is shown in the bottom, highlighted line of the display.
  Common softkeys and their meaning:
  <Menu>: The main menu will open.
  <Profile>: Display the profile
  <Param.>: Access the parameter lists
  <Start>: Setup a connection or start a test
  <Stop>: Clear down a connection or stop a test
  <Del.>: Delete the character before the cursor
  <Infos>: Open additional connection information
  <12>ab>: entry of the digits 0 to 9 plus * and #
  <ab>AB>: entry of the lowercase characters and @, /,- and .
  <AB>12>: entry of the uppercase characters and @, /,- and .
  You will find the other softkeys described at the relevant points in the manual.

Shift key

In some tests, a green circle with a green “S” will be shown in the uppermost line in the display. This indicates that the softkeys are assigned twice. In such a case, press the Shift key to change the function of the softkey (for an example, see Page 110).

Example:

Pressing the Shift key will change the softkey function.

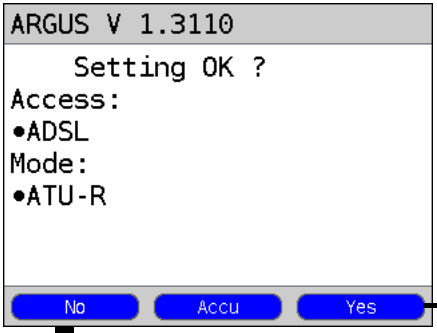


The ARGUS is in largest part operated with the 4 cursor keys, the confirmation key ✓, the return key ✗ and the three softkeys.

The current assignment of the three softkeys is shown in the lower line of the display.

On the following pages, only the softkey's meaning in the respective context is shown - enclosed in angle brackets **< >**, e.g. **<No>**. The softkey **<** ✓ **>** serves the same function as the confirmation key and the **<↓ >** softkey performs the same function as the cursor key ↓ on the ARGUS keypad.

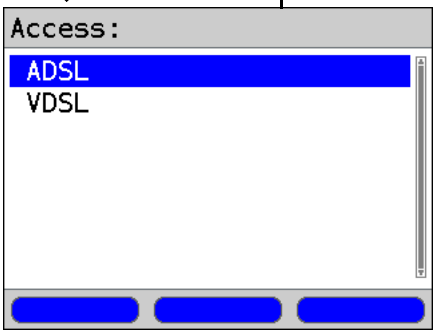
Example of operation:



Current assignment of the softkeys

<No> The displayed access will not be used. The Access menu will now open:

Header: Shows the name of the menu (in this example, the Access menu), the name of the currently running test etc.

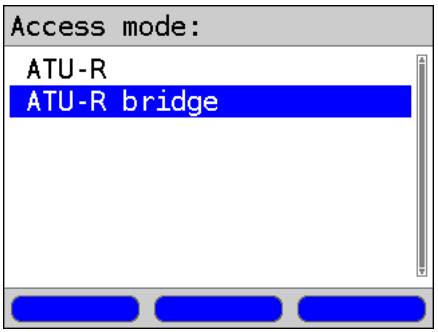


Select a line in the display:
in the example, Select a type of access; the selected type will be marked in blue (in this example, ADSL).

Confirm selection
In this example: The ARGUS will set the type of access to the one marked in blue. The Access mode menu will open.

Press the key.

Return to the previous display without changing to marked type of access.



Connectors at top

PWR

Connection for the external plug-in power supply. If the plug-in power supply is connected, the ARGUS will automatically disconnect the battery pack. After it is switched off, the ARGUS will automatically recharge the battery pack (see page 127).

USB-B

USB-B (mini-USB):

- USB client interface to connect to a PC.

Connections at bottom

Yellow “Link/Data” LED signals that a physical connection has been established to another Ethernet port

LED on constantly:
A connection has been setup.
LED flashing:
Active - sending or receiving

Line

xDSL connection Pin assignment: 4/5

LAN

Connection to a PC's network card (Access mode: xTU-R bridge)

Green "Speed“ LED signals the transmission speed
LED off: 10 BaseT
LED on: 100 BaseT

Charging the battery pack for the first time

The compartment for the rechargeable battery pack (accumulators) is located on the back of the case. Insert the battery pack with the locating lug at the top and then tighten the thumbscrew. Use only the battery pack included in the package. With the ARGUS switched off, connect it to the supplied plug-in power supply.

Press the -key to switch the ARGUS on. The following display should appear (it may be necessary to first acknowledge other display messages):

The access and mode shown may vary.

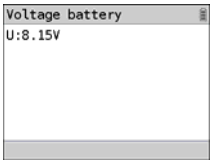
Current assignment of the softkeys

Press **<Batt.>**

Menu name

Selected command

Press



The ARGUS will switch itself off automatically as soon as the battery pack is recharged.

Press : Cancel "Charge" battery pack

The supplied battery pack will not reach its full capacity until it has been fully charged page 127.

Power-Down Mode

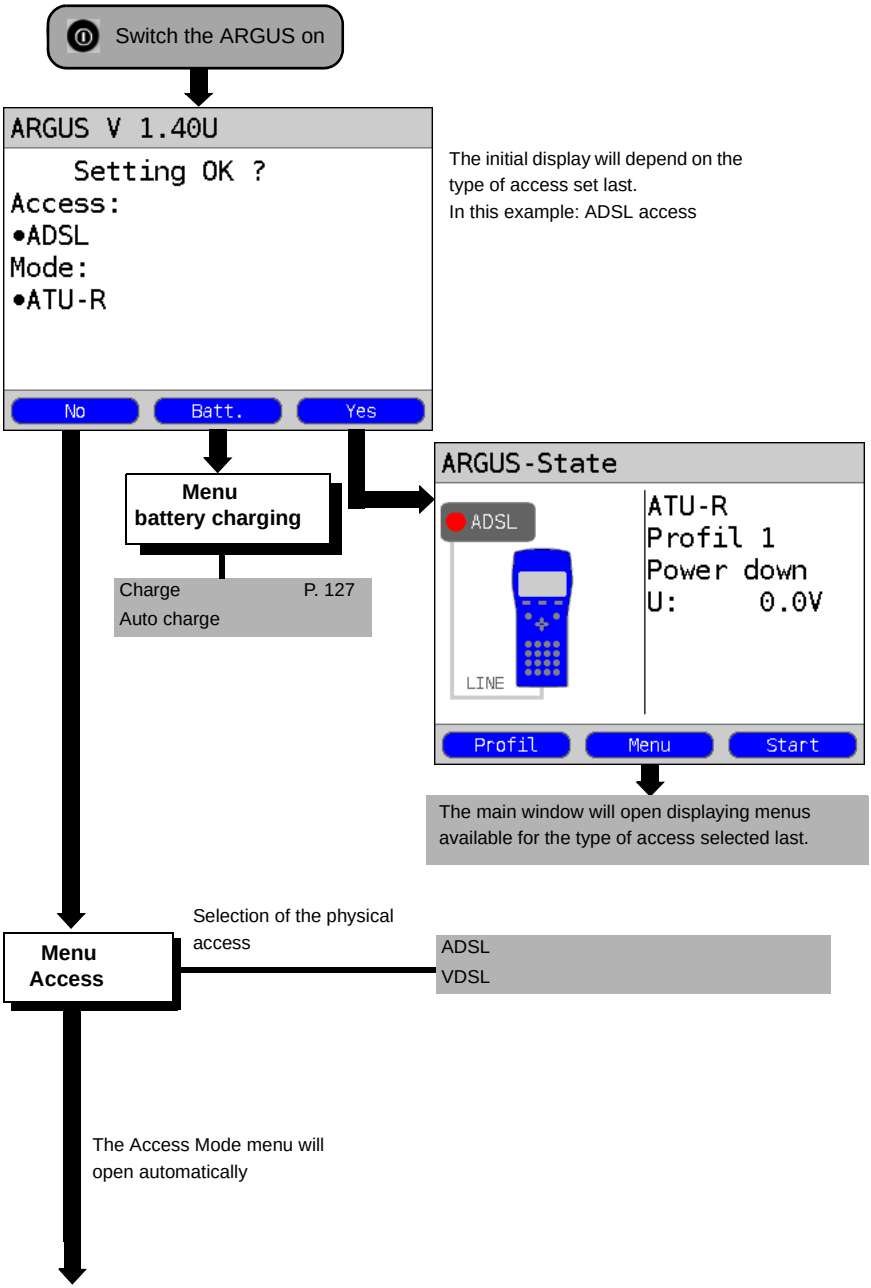
Page 125 in battery mode, the ARGUS will automatically power down after it has been idle for 15 minutes (this setting can be changed, see Page 125). Reasonably enough, the ARGUS will not power-down during a test (e.g. Loopbox) or when it is in Trace mode.

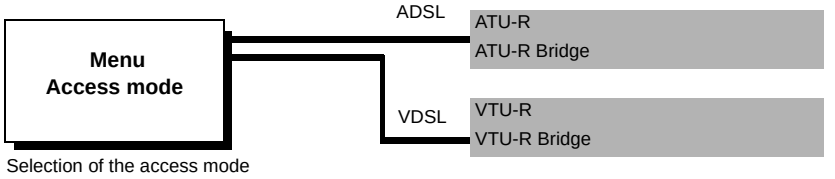
As an alternative, it is possible to operate the ARGUS using the included plug-in power supply. When the power supply is connected, the battery pack is automatically disconnected. Regardless of the type of supply used, the battery pack should always installed when you operate the ARGUS. This will ensure among other things the uninterrupted operation of the real-time clock.

Unplug the power supply from the mains, once the ARGUS is switched off and will no longer be used (charging the battery pack).

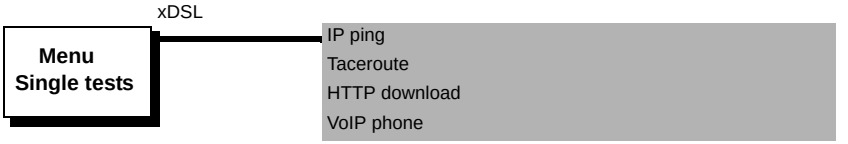
An Overview of the ARGUS Connections

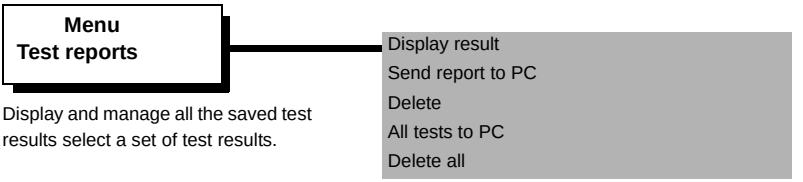
5 Menu Hierarchy



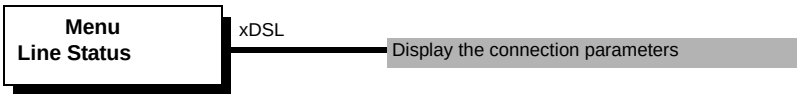


Selection of the access mode





Display and manage all the saved test results select a set of test results.



Menu Settings

The ARGUS can configured as needed. The configurable parameters are organised in submenus (e.g. all the ADSL parameters are in the ADSL submenu).

The default (factory) settings can be restored by selecting "Reset".

Trace/remote	off		
	Auto PC sync		
	Manual PC sync		
Profiles	Profile 1	to	Profile 10
Access parameters			
Phys. parameters			
	ADSL	ADSL mode	
		Rated value	
		Shutdown mode	
	VDSL	Rated value	
		FW	FS10.3, FS10.4
		Carrier set	B43
Protocol		PPPoE	
		PPPoA	
		IPoA	
		IP	
		EoA	
ATM		VPI/VCI	
		Encapsulation	
MAC / VLAN		MAC address	Default MAC
			Dynamic MAC
			00:00:00:00:00:00
		VLAN	Use VLAN
			ID
			Priority
PPP		User name	
		Password	
		Set IP	yes or no
		Activation delay	
IP		IP mode	Static IP
			DHCP client
		local IP address	
		IP netmask	
		Gateway IP	
		DNS server	DNS server 1
			DNS server 2
		DHCP client	DHCP timeout
			DHCP vendor ID
			DHCP vendor Info
			DHCP user class I
			DHCP user-def.opt.

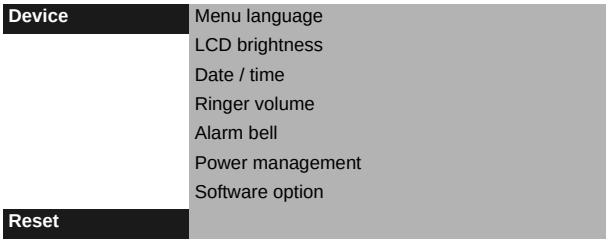
Continuation

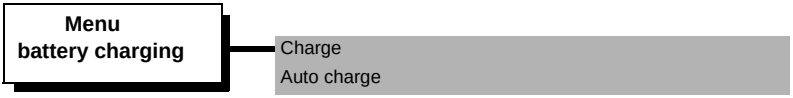
Bridge / Router			
		Autonegotiation on	
		Autonegotiation off	Speed
			Duplex
			Flow Control
Test parameters			
	IP ping	IP address	
		Number of pings	
		Pause	
		Packet size	
		Fragmentation	
	Traceroute	IP address	
		Maximum hops	
		Probes	
		Timeout	
	HTTP download	Server profile 1-10	Server
			Download filename
			Number of downl.
			No. parallel downl.
			Profilename

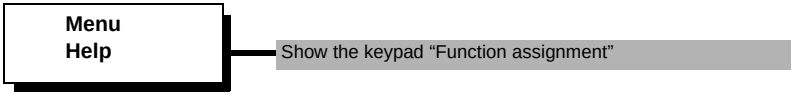
Continuation
Menu - Settings

VoIP	VoIP profile	Destination 1/-10		
		SIP settings	User name	
			Password	
			Registrar server	Use registrar
				Registrar server
			Outbound Proxy/SBC	Use Proxy
				Outb.Proxy/SBC
				Outb.P./SBC Port
			SIP Domain	
			Listen Port	
			Remote Port	
			Authentification	
			Caller ID	
			User Agent	
			Type of service	
			Qualify	
			Reg. expire	
			Del. exist. registrar.	
		Phone settings	Call acceptance	manual
				automatically
				echo test
			Silence detection	on or off
			Jitterbuffer	adaptive
				adaptive
			Codecs	
			DTMF settings	Mode
				Duration
		STUN Server	Use STUN	No / Yes
			STUN Server	
		MOS threshold		
		Profilename		
Data log		off		
		on		
Profile name				

Continuation
Menu - Settings







6 Operation on an ADSL Access

The ARGUS supports the following types of access (access modes):

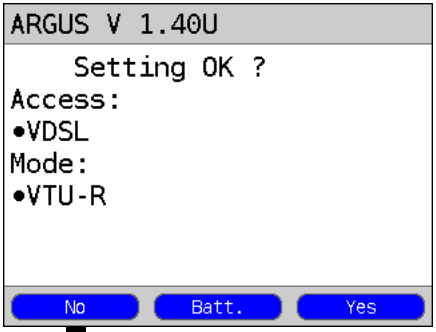
ATU-R Terminal mode (ADSL Transceiver Unit Remote - ATU-R), see page 39. Connection of the ARGUS directly to the ADSL access (before or after the splitter). The ARGUS replaces both the modem and the PC.

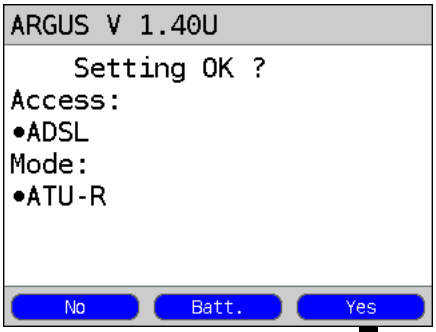
ATU-R Bridge Bridge mode (ADSL Transceiver Unit Remote Bridge), see page 52. Insertion of the ARGUS between the ADSL access and the PC. The ARGUS replaces the ADSL modem.

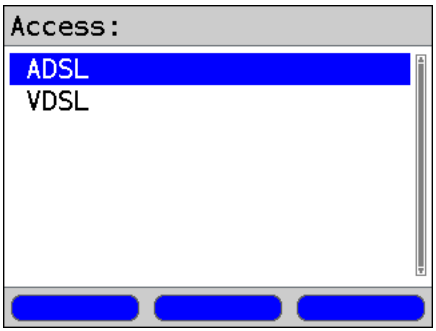
The individual ADSL tests record and store data (e.g. in tracing IP data). The user must comply with the statutory regulations governing the collection and storage of such data and his obligation to give notice in this connection.

6.1 Setting the ADSL Interface and Access Mode

Use the included xDSL cable to connect the ARGUS (Line jack) to the access to be tested and then switch the ARGUS on. Which initial display is now shown will depend on which access setting was made last on this ARGUS (e. g., VDSL and ADSL accesses):







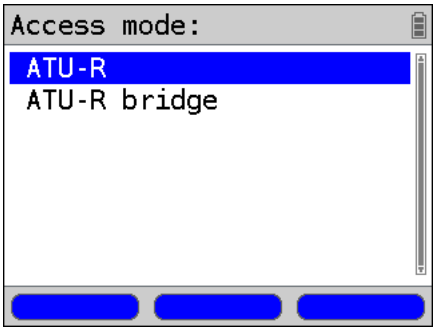
The Access Menu:

As access, select ADSL; the selected access type, ADSL, will be marked in blue.

The ADSL access type marked in blue will be used. The Access mode menu will open.

Continuation on next page

Continuation on next page

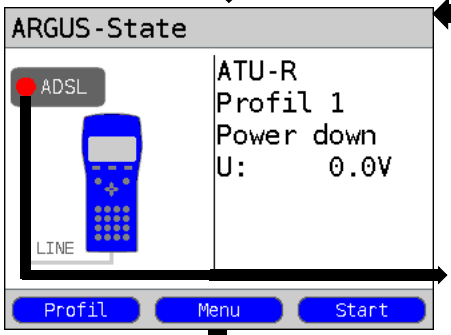


Access Mode Menu:

Select an Access mode; the selected mode will be marked blue (in this example, ATU-R).

The Access mode (in this example, ATU-R) will be used. The State display will open.

ARGUS State display



Display:

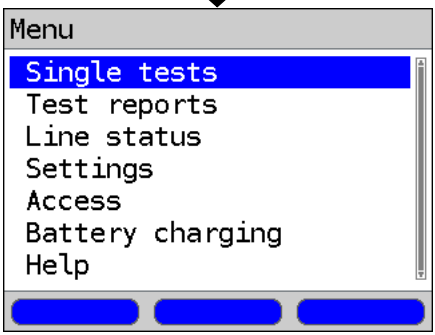
- Access mode
- Edit the preset profile (in this example, Profil1).
- State
- Interface's DC voltage

The ADSL test is not yet started:

Key to the LED symbolized in the display:

Red LED	no test started
Yellow LED	test started
Green LED	A connection has been setup.
<Menu>	Open the main menu.
<Profil>	Display the profile, see page 31

main menu



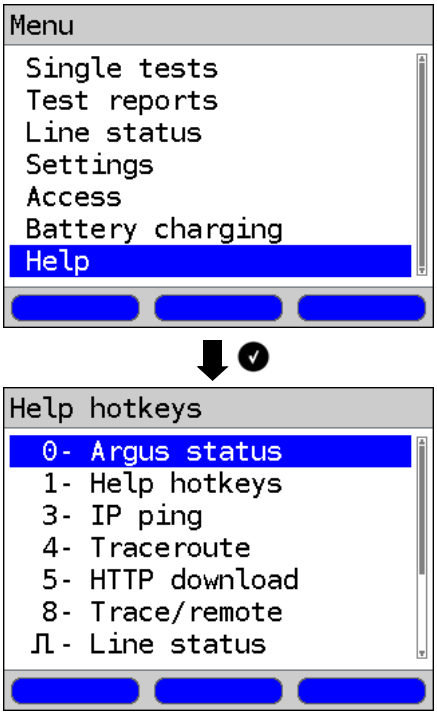
The various submenus available for the selected type of access are shown in the main menu.

Opens the marked menu (in this example, Single tests).

Select a menu. The selected menu will be marked blue in the display.

to return to the previous menu (in the example, the State display).

Starting functions with the numeric keys / key combinations



Using the ARGUS keypad, you can start important functions / tests directly, regardless of the menu that the ARGUS is currently showing. If a function is called where the ARGUS expects the entry of a digit, pressing a number key will be interpreted as the expected input.

The assignment of functions to the numeric keys can also viewed on the ARGUS display. Open the main menu and select “Help”.

The function assignment depends on the access mode (in the following, ATU-R)

Numeric key 0	ARGUS Status display
Numeric key 1	Shows the “hotkey assignment” on the ARGUS display
Numeric key 3	Starts an IP ping test
Numeric key 4	Starts an Traceroute test
Numeric key 5	Starts HTTP download test
Numeric key 8	Opens the Trace / remote menu

Displays the Line status

Starts VoIP telephony

One after the other

and

Opens the access menu

One after the other

and

Displays the available SW options

One after the other

and

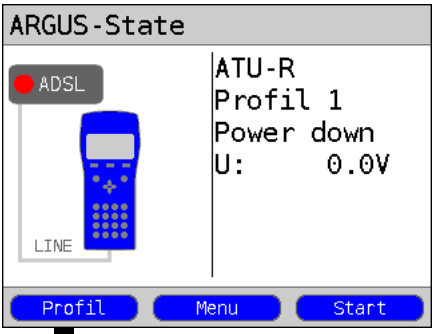
Resets all settings to their default (preset) values

The settings (e.g. PPP user name, IP addresses etc.), Profile names and all of the test results stored in the ARGUS will be deleted.

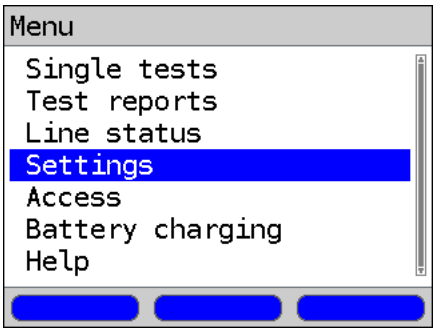
6.2 ADSL Settings

The ARGUS stores all of the settings required to run a test on an ADSL access in profiles. Up to 10 user-defined profiles can be created. A specific profile can be selected before an ADSL connection is setup or a test performed, otherwise the ARGUS will use the default (preset) profile. Only those settings which are relevant will be used for the respective test situation. The default settings can be restored at any time (see page 126). The procedure for changing a setting will be illustrated with a single example:

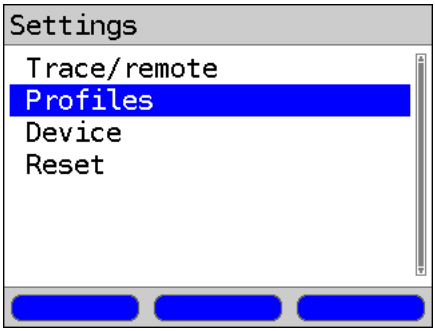
ARGUS – status display



The ARGUS - Main menu

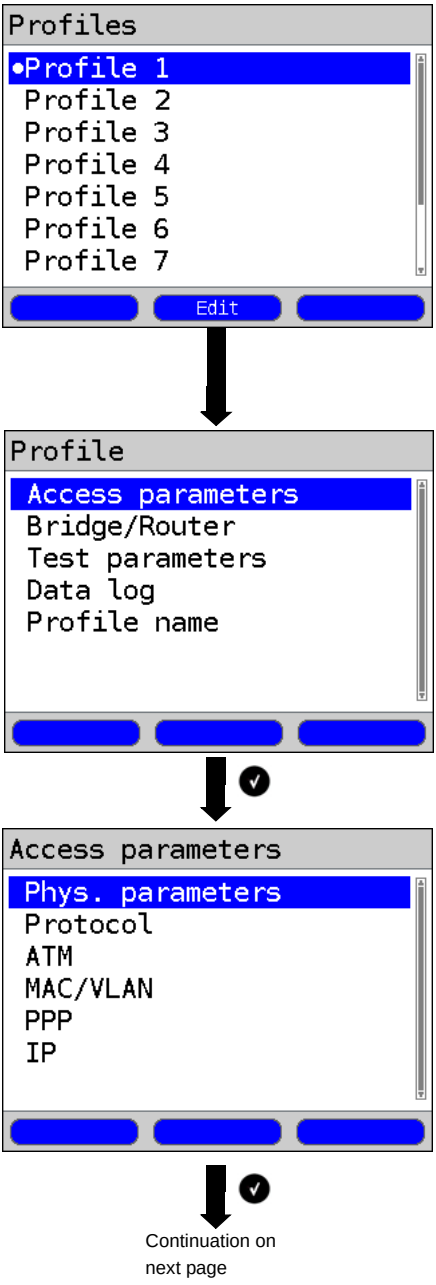


Select "Settings"



Mark “Profiles”

Continuation on next page

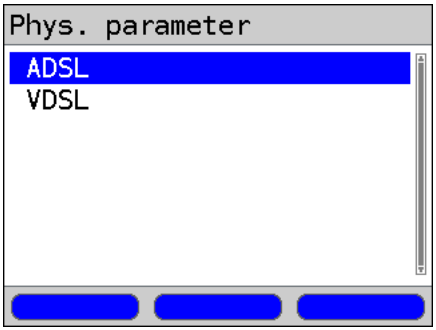


Select a profile for editing. The selected profile will be marked blue in the display. The default profile will be marked in the display with a ●. The ARGUS will use the settings in the default (preset) profile when setting up the ADSL connection.

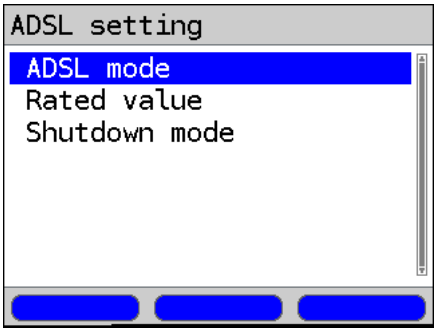
The ARGUS will use the marked profile as the default profile and will open either the State display or the Settings menu (depending on whether the profile was opened from the main menu or the State display).

e.g. select Access parameters

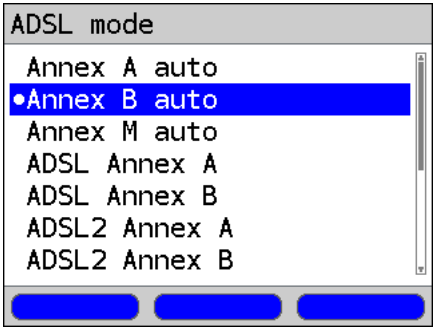
e.g. Phys. parameters



e.g. select ADSL



e.g. select ADSL mode



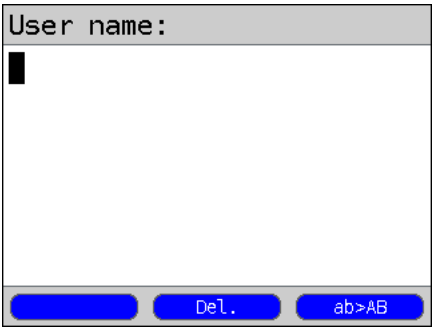
Select the ADSL mode (in this example, Annex B auto). The default setting will be marked in the display with a ●.

Open the next higher menu without making any changes. The ARGUS will continue to use the default setting.

The ARGUS uses the marked ADSL mode as the default and returns to the next higher menu.

Settings:	Explanation:
Access parameters	
Phys. parameters	
ADSL:	Access parameters for the ADSL connection
ADSL mode	Different ADSL modes can be selected depending on the national variant of the ARGUS. The selected ADSL mode must be compatible to ATU-C (network-side). If the ADSL mode “Annex A Auto” is selected, the ARGUS will automatically determine the configuration of the DSLAM (G.DMT or ANSI) and set itself accordingly. Default setting: ***depends on country***
Rated Values	Use the keypad to enter the upstream and downstream comparison values for the ATM bitrate [kbit/s]. If the current bitrates on the ADSL connection exceed the rated values, the ARGUS will display "OK“, otherwise it will display "FAIL“. Default setting: ***d: 0*** and ***u: 0***
Shutdown mode	The type of disconnect used for the ADSL connection. Dying Gasp only (ADSL2+) or Orderly Shutdown. Default setting: ***Dying gasp***
Protocol:	Selection of the transfer protocol that the ARGUS should use for the test (e.g. for an IP test). Protocols for ADSL: PPPoE (PPPoEoA) - Point-to-Point Protocoll over Ethernet PPPoA - Point-to-Point-Protokoll over ATM EoA (IPoE, IPoEoA) - Ethernet over ATM IPoA - Internet Protokoll over ATM Default setting: ***PPPoE***
ATM:	Settings for Asynchronous Transfer Mode
Standard VC	The identifier of the virtual channel in the ATM cells - Virtual Path (Channel) Identifier
VPI / VCI	VPI: Enter Virtual Path Identifier VCI: Enter Virtual Channel Identifier Ranges: VPI: 0 to 127, VCI: 32 to 255 Default: ***depends on country***

Encapsulation	Selection of the encapsulation of the packets to be sent (LLC or VC-MUX). Default setting: ***LLC***
MAC / VLAN:	MAC (Media Access Control) and VLAN (Virtual Local Area Network)
MAC address	Display and selection of the MAC addresses. The first two MAC addresses cannot be changed. If the default MAC address is selected, the ARGUS will use its own MAC address. Default setting: ***Default MAC address*** If Dynamic MAC Address is select a different MAC address will be used for each synchronization. A third MAC address can be entered: Mark and then press **<Edit>**. **<Edit>** Open the MAC address for entry. Enter the address in hexadecimal from the keypad and the softkeys **<A..F>** (e.g. to enter a “C” press the softkey three times or to enter an “F” six times, then finish up by pressing **<OK>** to confirm your entry). Default setting: ***00:00:00:00:00:00*** ✓ Use the address. The new address is only saved temporarily and will not be available when the ARGUS is switched on again.
VLAN	Use VLAN: Specifies whether or not VLAN should be used: yes, no. Default setting: ***No*** ID: Identifier for the VLAN to which the frame belongs. Every VLAN is assigned a unique number, the VLAN ID. A device, which belongs to the VLAN with the ID = 1, can communicate with every other device in the same VLAN, but not with a device in other VLANs (one with an ID other than 1, i.e. 2). Range: from 0 to 4095 Default: ***0***
	Priority: User-priority information. An eight-level (3 bits) priority can be assigned to each frame. In this manner, it is possible e.g. to give priority to forwarding voice data, while HTTP data will be handled as a lower priority. Range: 0 to 7 Default: ***0***

PPP:	PPP (Point- to-Point Protocol) settings
User name 	Entry of the user name assigned (by the network operator) Use the keypad to enter the user name. When the right softkey is pressed it assumes a different meaning and thus influences the entries made from the keypad (letters or digits):
Password	Entry of the password assigned by the network operator: For instructions, see User name
Set IP	If “Yes”, the IP address entered as own IP address (see page 36) will be used for the connection. Default setting: ***No***
Activation delay	After setting up the PPP connection, the ARGUS will first wait until the period specified in the “activation delay” has elapsed before beginning a test. Range: 2 to 10 seconds Default: ***2***
IP:	Internet protocol settings
IP mode	Setting the assignment of the IP addresses Static IP: fixed IP addresses DHCP client: IP address assigned by the server (remote end) Default setting: ***DHCP client***
local IP address	Own local IP address of the ARGUS Range: 0.0.0.0 to 255.255.255.255 Default setting: ***0.0.0.0*** (see RFC 3330 regarding assignment)
IP netmask	IP netmask Range: 0.0.0.0 to 255.255.255.255 Default setting: ***255.255.255.0*** (see RFC 3330 regarding assignment)

Gateway IP	Gateway IP address Range: 0.0.0.0 to 255.255.255.255 Default setting: ***0.0.0.0*** (see RFC 3330 regarding assignment)
DNS server	DNS Server 1, DNS Server 2 Entry of the IP address of the DNS server (DNS = Domain Name System) Range: 0.0.0.0 to 255.255.255.255 Default setting: ***0.0.0.0*** (see RFC 3330 regarding assignment)
DHCP client	DHCP timeout (setting of how long to wait for the IP address): Range: 1 to 9999 seconds Default: ***20***
	DHCP vendor ID: - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Enter the DHCP vendor ID in ASCII format Default setting: ***ARGUS***, for instruction see page 36 - HEX data: Enter the DHCP vendor ID in hexadecimal format Operation, see MAC address page 35
	DHCP vendor info: - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Enter the DHCP vendor info in ASCII format Default setting: ***ARGUS***, for instruction see page 36 - HEX data: Enter the DHCP vendor info in hexadecimal format, operation see MAC address page 35
	DHCP user class information - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Enter the DHCP user class i. in ASCII format Default setting: ***ARGUS***, for instruction page 36 - HEX data: Enter the DHCP user class information in hexadecimal format, operation see MAC address page 35
	DHCP user-defined option (Create a user-defined DHCP option) - Option number Range: 0 to 255 Default: ***255 = off*** - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Entry of the DHCP user-def. option in ASCII format Default setting: ***ARGUS***, operation see page 36 - HEX data: Enter the DHCP user-defined option in hexadecimal format, operation see MAC address page 35

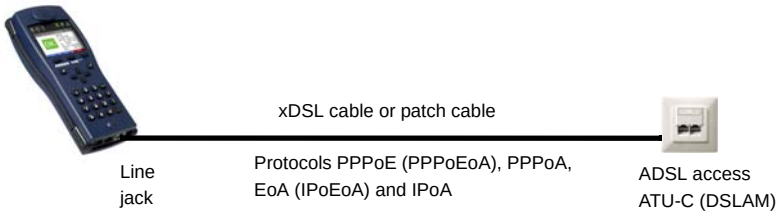
Bridge / Router	
Autonegotiation	
	Switch on or off If autonegotiation is enabled, a network card can independently determine the correct transmission speed and duplex setting for the network port to which it is connected and can then configure itself accordingly. In the case of Ethernet, autonegotiation is based on Layer 1 of the OSI Model (in accordance with the IEEE 802.3u standard). Default setting: ***on***
Test parameters	The test parameters are described in the chapters on IP and VoIP tests.
Data Log	Data Log on or off. This setting must be "ON“ in order to send a trace file to a PC see P. 48. Default setting: ***off***
Profile name	Enter the name of the profile

6.3 The ARGUS in the ATU-R Access Mode

6.3.1 Determining the ADSL connection parameter

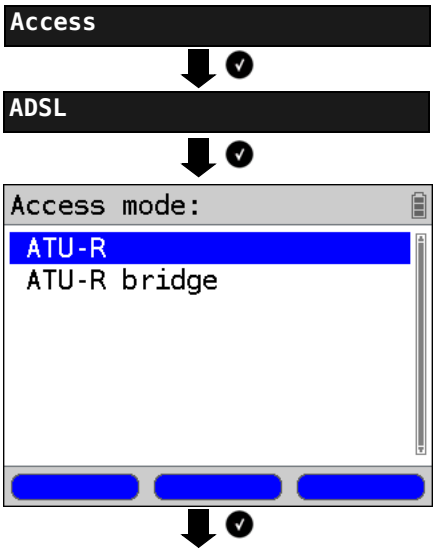
The ARGUS is connected directly to the ADSL access (either before or after the splitter) using the included xDSL cable or a patch cable. In this case, the ARGUS replaces both the modem and the PC. The ARGUS will set up an ADSL connection and determine all of the relevant ADSL connection parameters. The ARGUS displays the ADSL connection parameters and saves them after the connection is cleared down if desired.

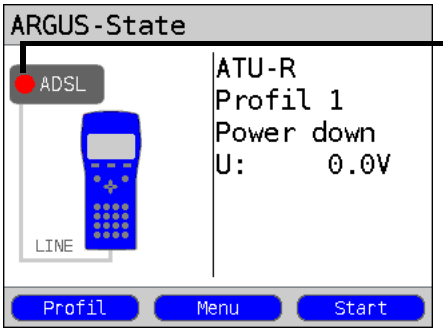
Use only the cable included in the package!



Setting the ATU-R access mode:

The ARGUS - Main menu





The ADSL test is not yet started: red LED in the display.

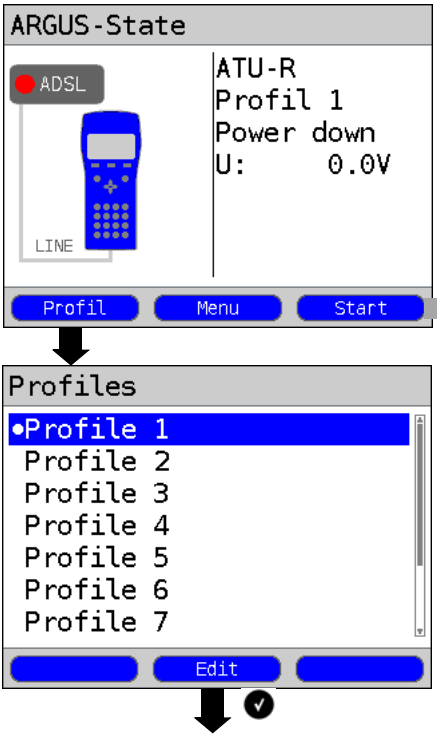
Key to the LED symbolized in the display:

Red LED	no test started
Yellow LED	test started
Green LED	A connection has been setup.

Setting Up an ADSL Connection

Profile settings:

When setting up the ADSL connection, the ARGUS uses the settings saved in the profile (see page 31): ADSL mode, target value, and shutdown mode.



ARGUS – State display

The ARGUS will use the default (preset) profile to setup the ADSL connection (in this example, Profile 1).

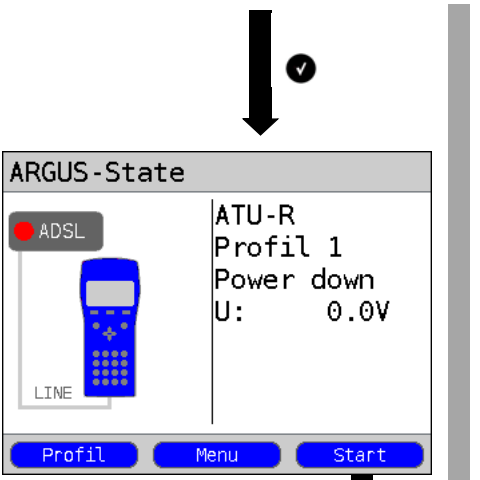
Display the profile.

The default profile will be marked in the display with a ● (in this example, Profile 1).

Mark the profile.

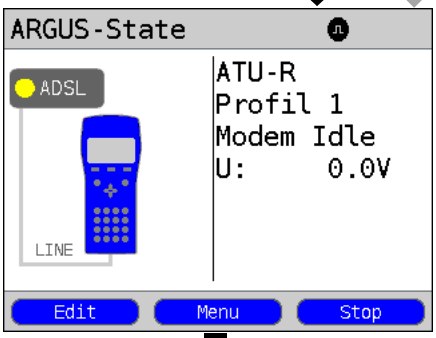
<Edit> Edit the marked profile. The settings of the selected profile can be edited here (see P. 31).

Continuation on next page

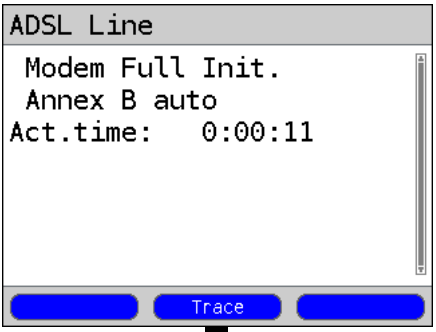


The ARGUS takes over the marked profile as the default and returns to the State display.

Set up an ADSL connection.



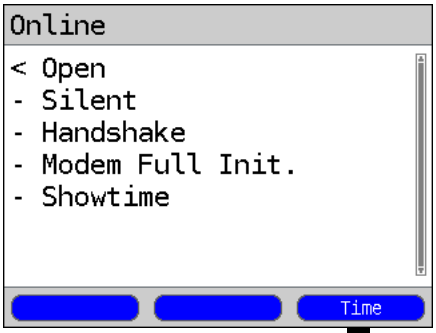
The ARGUS synchronizes with the DSLAM (the “Sync / L1” LED will flash and a yellow LED will be shown in the display).
The ARGUS will display the current status of the connection (in this example, Modem Idle).



Display:

- Current connection status
- ADSL mode
- time elapsed since the start of synchronisation in h:min:sec.

Continuation on next page

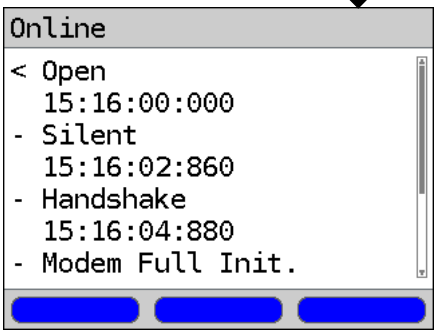


Command symbols:

< = command sent from the ARGUS

> = command sent from the DSLAM

- = connection status



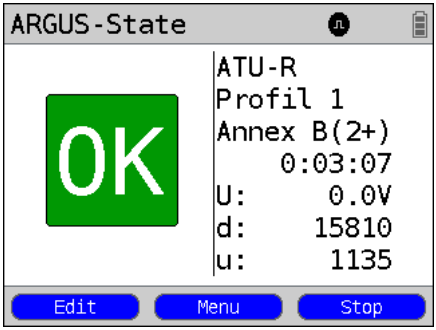
Display timestamp.

The ARGUS shows the time when (internal clock, see page 124) the command arrived.

Return to the previous display

Connection successfully setup

Once the connection has been setup (“Sync / L1” LED on constantly and a green LED will be shown in the display), the ARGUS will determine and display the ADSL connection parameters. After the ARGUS has synchronized, please leave it connected to the ADSL access for at least another 20 seconds since the ADSL connection parameters cannot be stored in the ARGUS until this period of time has elapsed.



ARGUS – State display.

Display:

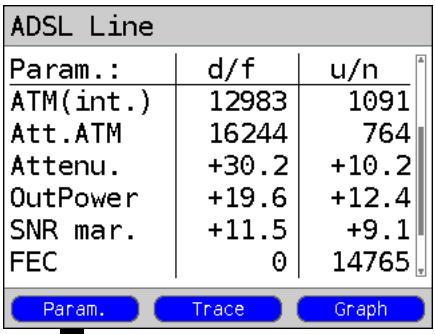
- Access Mode
- Default (preset) profile
- ADSL mode
- Duration of the setup connection
- Interface's DC voltage
- d: Downstream data rate
- u: Upstream data rate

If the current data rates on the ADSL connection exceed the rated values (see page 34), the ARGUS will display "OK“, otherwise it will display "FAIL“.

<Edit> The preset profile (in this example, Profile 1) will be displayed. The ADSL access parameters are disabled. The other settings can be edited here (see page 34).

<Menu> Open the Main menu.

<Stop> Clear down the ADSL connection.

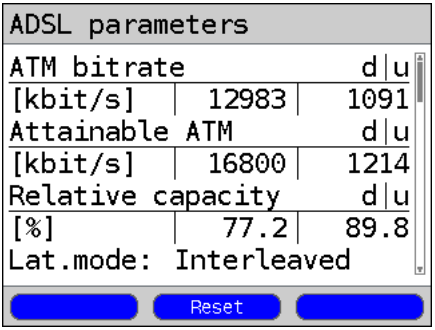


Display the ADSL connection parameters in brief.
- d/f: downstream/far
- u/n: upstream/near

Scroll through the connection parameters.

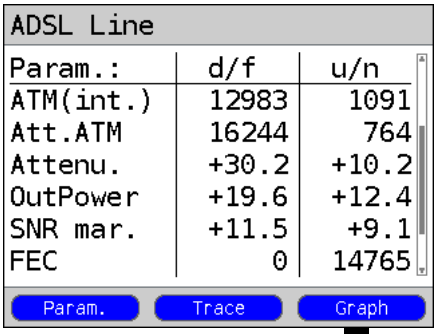
<Trace> Display the trace data.

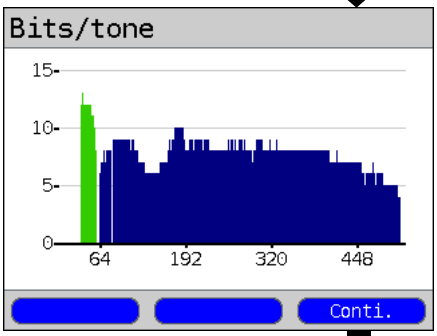
Continuation on next page



Display the connection parameters in long form for both downstream (d) and upstream (u) (see table page 46).

<**Reset**> Resets (zeros) the error counters FEC, CRC, and HEC.

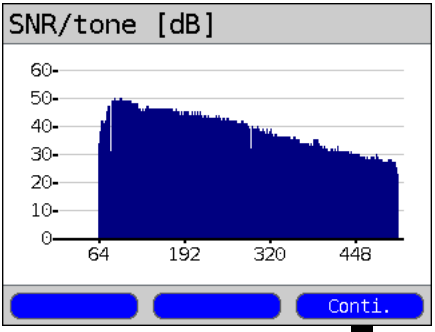




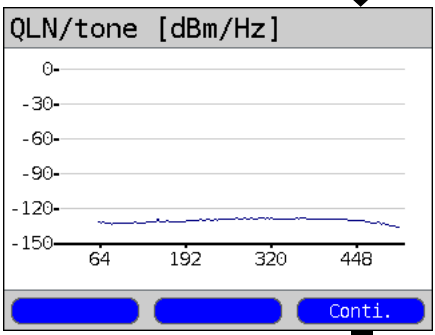
Display the bit distribution,
e.g. bits transported per carrier frequency (tone).
y-axis: bits per carrier frequency (tone)
x-axis: tones (carrier frequency)
Based on the bit distribution, it is possible to detect line disturbances (e.g. through HDB3, HDSL, RF etc.)

The ARGUS will return to the previous display

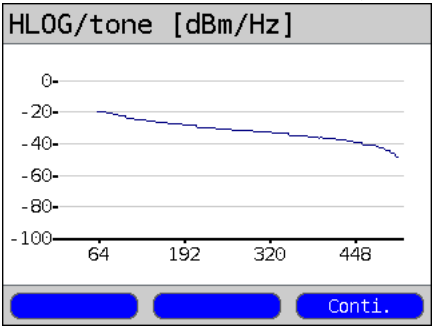
Continuation on next page



Display of the signal-to-noise ratio for each tone
y-axis: SNR in dB
x-axis: tones (carrier frequencies)
It is possible to detect disturbances on the individual tones (carrier frequencies).



Display of the quiet level noise (QLN) for each tone
y-axis: QLN in dBm/Hz
x-axis: tones (carrier frequencies)
It is possible to detect disturbances on the individual tones (carrier frequencies).



Display of the amplitude component of the transfer function (Hlog) for each tone
y-axis: Hlog in dBm/Hz
x-axis: tones (carrier frequencies)
It is possible to detect disturbances on the individual tones (carrier frequencies).

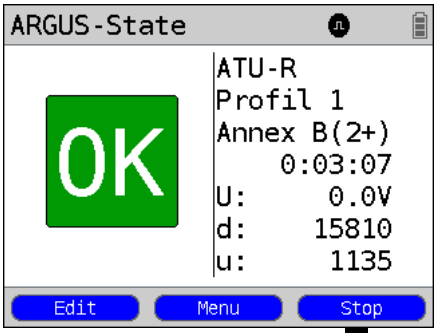
<Continue> and the ARGUS will return to the Bits/tone graphs.

The ARGUS determines the following ADSL connection parameters:

ADSL connection parameters	
ATM	The actual useable ATM bitrate in kBit/s.
Attainable ATM	This is the theoretically attainable ATM bitrate in kbit/s.
Relative capacity	Utilization of the line as a percentage
Latency mode	Depending on the configuration of the DSLAM, the ARGUS will display either Interleaved or Fast mode.
Attenuation	The line's attenuation in dB over its entire length and bandwidth.
Output power	Output power in dBm
SNR margin	The signal-to-noise ratio in dB; the SNR margin is a measure of how much additional noise the transmission can withstand and still achieve a BER (Bit Error Rate) of 10^{-7}.
Impulse noise prot.	The Impulse Noise Protection is an indicator of the quality of the protective mechanism as far as impulse noise is concerned. The number of DMT symbols, which can be completely distorted in succession, without an error occurring on the higher layers.
Interleave Delay	The delay (in msec) caused by interleaving the data blocks.
FEC	Forward Error Correction The number of transmission errors corrected using the ATM cell checkbytes. f (far): Errors that the DSLAM has detected and informed the ARGUS. n (near): Errors which were detected by the ARGUS in the blocks it received.
CRC	Cyclic Redundancy Check The superframe checksum sent from the opposing end does not match the one calculated locally. Possible cause: Fault on the line. f (far): Errors that the DSLAM has detected and informed the ARGUS. n (near): Errors which were detected by the ARGUS in the blocks it received.

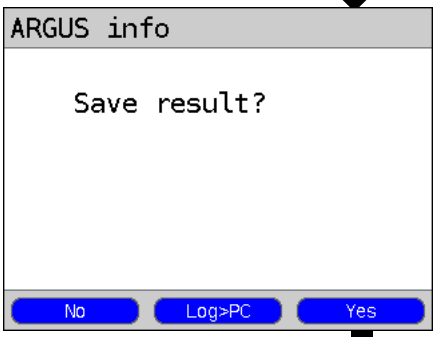
HEC	Header Error Checksum The number of ATM cells with bad header checksums. f (far): Errors that the DSLAM has detected and informed the ARGUS. n (near): Errors which were detected by the ARGUS in the blocks it received.
Reset	Shows how often the error counters have been reset by the user with the **<Reset>** softkey.
Resync	Number of times that the ARGUS has been resynchronized.
Vendor far	The manufacturer of the ATU-C side shown as a hexadecimal number.
Version	Vendor Specific Information, generally shows the version of the software running at the ATU-C (DSLAM) end.
Vendor near	The manufacturer of the ARGUS chipset (ATU-R) coded as a hexadecimal number.
Version	Vendor Specific Information, shows the software version of the ARGUS

Clear down the ADSL connection and save the results

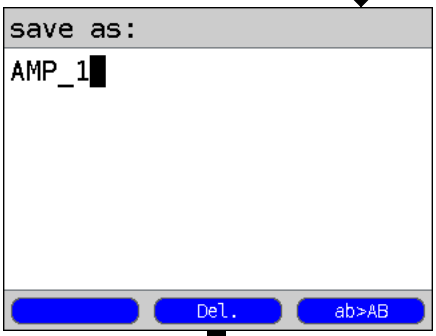


ARGUS – State display

Clear down the ADSL connection.



<Log>PC>:
The ARGUS will send the trace file to the connected PC, which must be running with WINplus or WINanalyse. The data will be saved in the standard "pcap" format and can be decoded with a freeware program (e.g. Wireshark). The setting “Data log” must be set to “on”. In bridge mode, two log files will be loaded to the PC, one for the WAN and one for the LAN side.

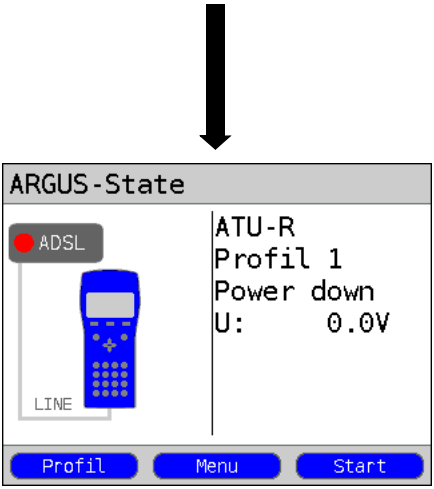


The ARGUS saves the ADSL connection parameters together with the trace data in the first available memory location, which can be assigned any name (see page 119).
The name for the memory location is entered using the keypad (default: AMP_1, AMP_2, ... or the call number of the access under test if the number has been entered into the speed-dialling memory (see page 127)).

If the memory is full, you must manually select a memory location to be overwritten.

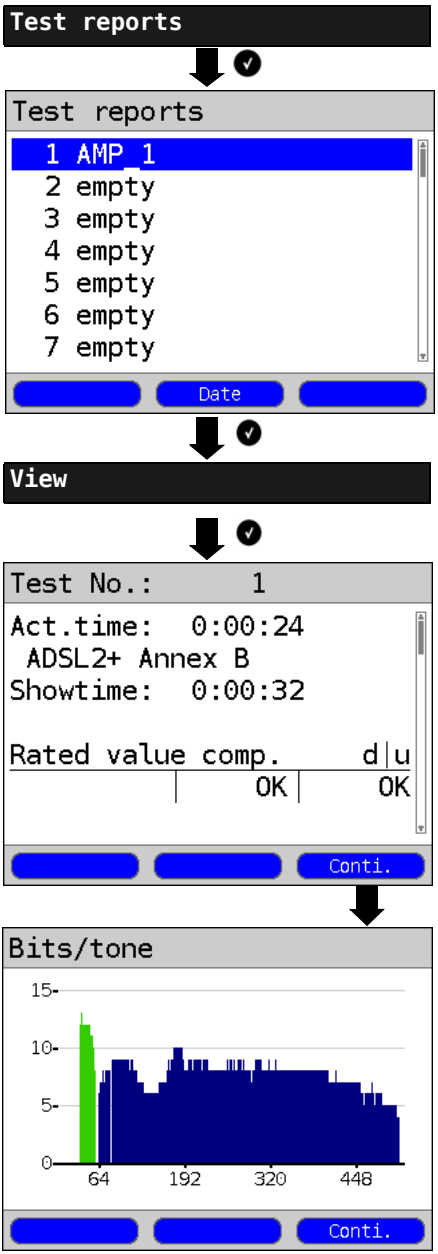
Store the result

Continuation on next page



Once the results have been successfully saved in memory, the ARGUS will return to the State display.
A new test can be started by pressing **<Start>**.

Displaying the saved test results



The ARGUS - Main menu

Mark the saved test results.

<Date> Display of the date and time that the results were saved.

Display the test results:
The ARGUS displays the ADSL state and the ADSL connection parameters.

Scroll through the ADSL connection parameters.

Bit distribution display (Bits/tone)

<Continue> Display of the signal-to-noise ratio for each tone (SNR / tone), the QLN / tone, the Hlog / tone and the trace data.

Close the results display.

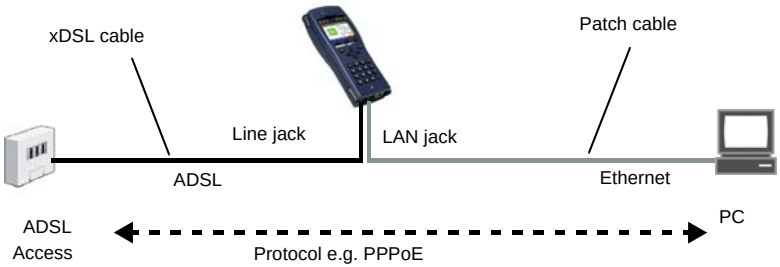
6.3.2 Tests in ATU-R Access mode

Depending on the protocol, the following tests are supported:

IP tests, see page 83	- IP ping - Traceroute - HTTP download
VoIP tests, see page 104	- VoIP telephony

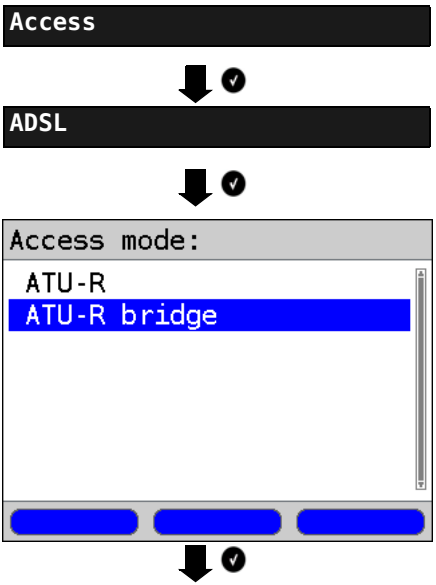
6.4 The ARGUS in the ATU-R Bridge Access Mode

Connect the ARGUS to the ADSL access using the xDSL cable and to the PC with a patch cable.
In bridge mode, the ARGUS acts like an ADSL modem, i.e. the ARGUS passively passes all packets from the Ethernet side to the ADSL access (and vice versa). In this case, the PC is responsible for setting up the connection.

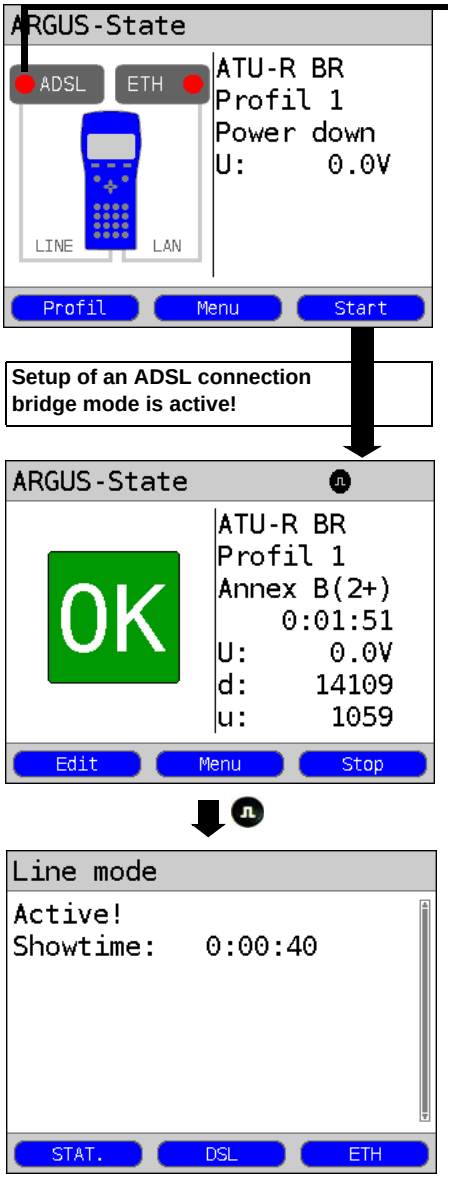


6.4.1 Setting the access mode to ATU-R bridge:

The ARGUS - Main menu



Continuation on next page



The ADSL test is not yet started:

Key to the LED symbolized in the display:

Red LED	no test started
Yellow LED	test started
Green LED	A connection has been setup.

Display:

- Access mode (BR = Bridge)
- Default (preset) profile, see P. 31
- Current State

  Interface's DC voltage

<Profile>	Display the profile (page 40) ADSL settings: Access parameters / Phys. parameters / ADSL / ADSL mode ATM settings: Access parameters / ATM (page 34)
<Stop>	Deactivate bridge mode, Clear down the ADSL connection
	Display Line mode
<Stat.>	WAN Ethernet statistics
<DSL>	ADSL connection parameters Trace data Bits, SNR, QLN, Hlog/tone
<ETH>	Ethernet Phys. parameters

This information can also be called up from the Line status menu.

7 Operation on a VDSL Access

The ARGUS supports the following types of access (access modes):

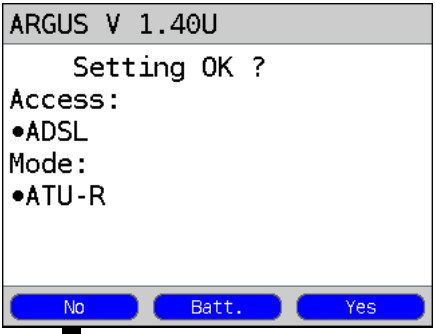
VTU-R Terminal mode (VDSL Transceiver Unit Remote) see page 67
Connection of the ARGUS directly to the VDSL access (before or after the splitter). The ARGUS replaces both the modem and the PC.

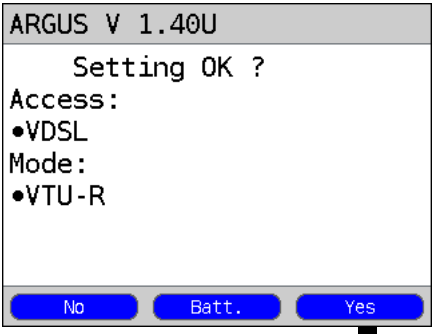
VTU-R Bridge Bridge mode (VDSL Transceiver Unit Remote Bridge) see page 81
Connection of the ARGUS to the VDSL access and the PC. The ARGUS replaces the VDSL modem.

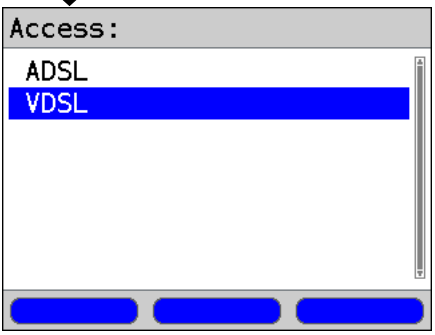
The individual VDSL tests record and store data (e.g. in tracing IP data). The user must comply with the statutory regulations governing the collection and storage of such data and his obligation to give notice in this connection.

7.1 Setting the VDSL Interface and Access Mode

Use the included xDSL cable to connect the ARGUS (Line jack) to the access to be tested and then switch the ARGUS on. Which initial display is now shown will depend on which access setting was made last on this ARGUS:



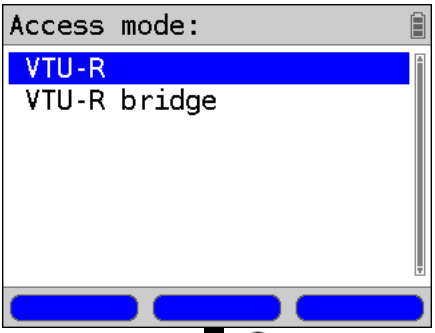




The Access Menu:

As access, select VDSL; the selected access type, VDSL, will be marked in blue.

The VDSL access type marked in blue will be used. The Access mode menu will open.



Access Mode Menu:

Select an Access mode; the selected mode will be marked blue (in this example, VTU-R).

The ARGUS will use the access mode marked in blue (in this example, VTU-R). The State display will open.

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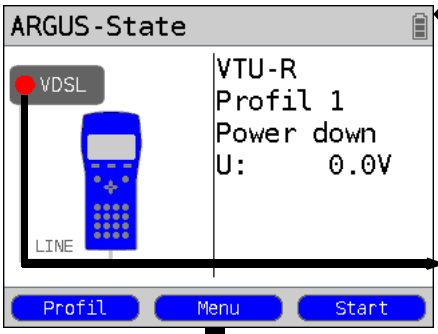
Continuation on next page

ARGUS State display



Display:

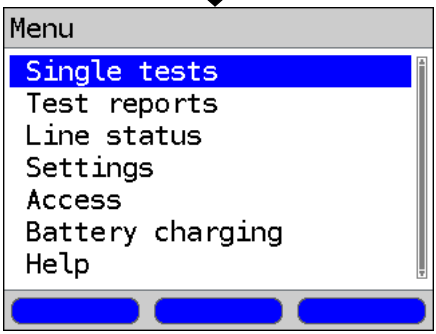
- Access mode
- Edit the preset profile (in this example, Profil 1).
- State
- Interface's DC voltage

The VDSL test is not yet started!

Key to the LED symbolized in the display:

Red LED	no test started
Yellow LED	test started
Green LED	A connection has been setup.
<Menu>	Open the main menu
<Profil>	Display the profile, see Seite 59

Main menu



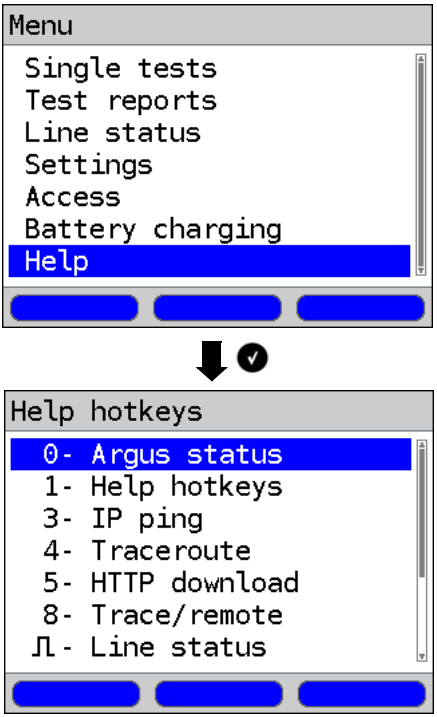
The various options available for the selected type of access are shown in the main menu.

The ARGUS will open the marked menu (in this example, Single tests).

Select a menu. The selected menu will be marked blue in the display.

to return to the previous menu (in the example, the State display).

Starting functions with the numeric keys / key combinations



Using the ARGUS keypad, you can start important functions / tests directly, regardless of the menu that the ARGUS is currently showing. If a function is called where the ARGUS expects the entry of a digit, pressing a number key will be interpreted as the expected input.

The assignment of functions to the numeric keys can also viewed on the ARGUS display. Open the Main menu and select “Help”.

The function assignment depends on the access mode (in the following, VTU-R)

Numeric key 0	ARGUS Status display
Numeric key 1	Shows the “hotkey assignment” on the display (Help)
Numeric key 3	Starts an IP ping test
Numeric key 4	Starts an Traceroute test
Numeric key 5	Starts HTTP download test
Numeric key 8	Opens the Trace / remote menu

Displays the Line status

Starts VoIP telephony

One after the other

and

Opens the access menu

One after the other

and

Displays the available SW options

One after the other

and

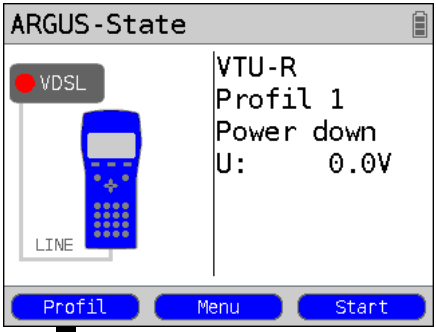
Resets all settings to their default (preset) values

The settings (e.g. PPP user name, IP addresses etc.), Profile namesand all of the test reports stored in the ARGUS will be deleted.

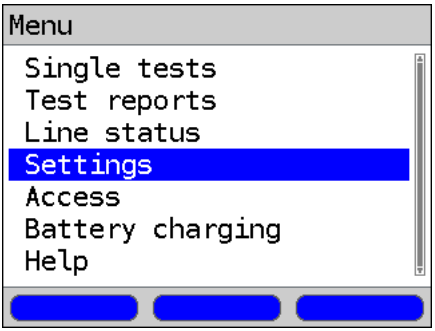
7.2 VDSL Settings

The ARGUS stores all of the settings required to run a test on a VDSL access in profiles. Up to 10 user-defined profiles can be created. A specific profile can be selected before a VDSL connection is setup or a test performed, otherwise the ARGUS will use the default (preset) profile. Only those settings which are relevant will be used for the respective test situation. The default (factory) settings can be restored at any time (see page 126). The procedure for changing a setting will be illustrated with a single example:

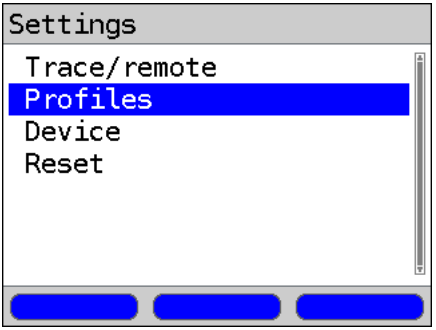
ARGUS – status display



The ARGUS - Main menu

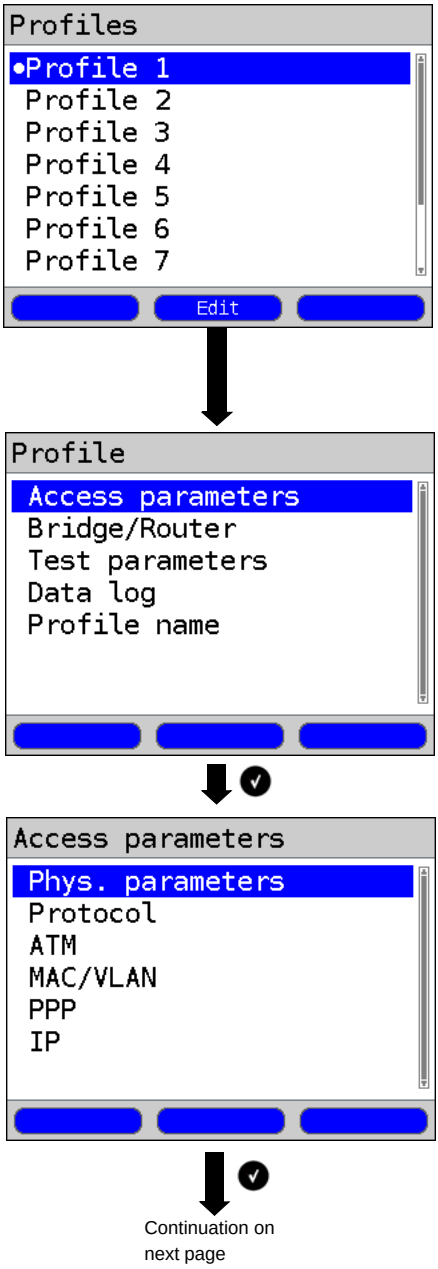


Select "Settings"



Mark “Profiles”

Continuation on next page

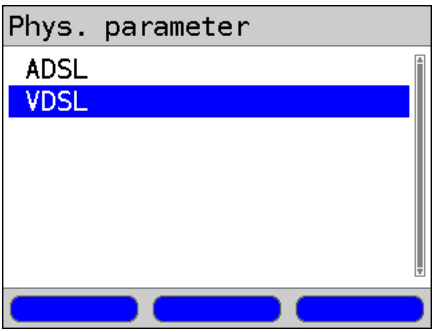


Select a profile for editing. The selected profile will be marked blue in the display. The default profile will be marked in the display with a ●. The ARGUS will use the settings in the default (preset) profile when setting up the VDSL connection.

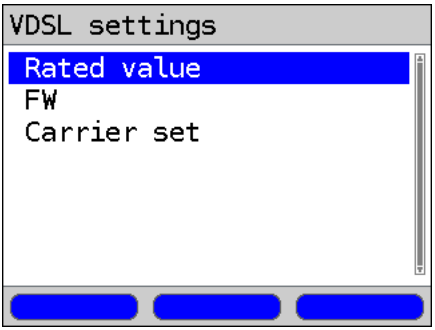
The ARGUS will use the marked profile as the default profile and will open either the State display or the Settings menu (depending on whether the profile was opened from the main menu or the State display).

e.g. select Access parameters

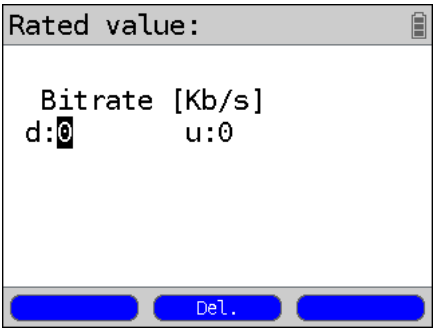
e.g. select Phys. parameters



e.g. select VDSL



e.g. select target value



Use the keypad to enter the downstream and upstream bitrate.

Move the cursor within the line.

<Del.> Delete the digit before the cursor

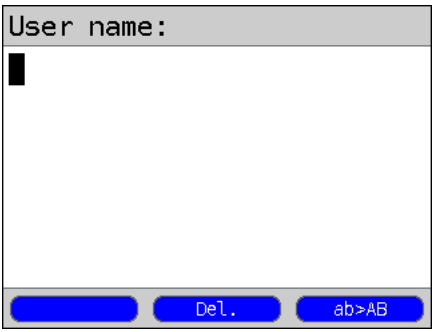
The ARGUS will return to the next higher menu without saving any change made to the bitrate. The ARGUS will continue to use the default setting.

The bitrate setting will be stored in the profile. The ARGUS opens the next higher menu

Settings:	Explanation:
Access parameters	
Phys. parameters:	
VDSL	Access parameters for the VDSL connection
Rated value	Use the keypad to enter the upstream and downstream comparison values for the bitrate [kbit/s]. If the current bitrates on the VDSL connection exceed the rated values, the ARGUS will display "OK", otherwise it will display "FAIL". Default setting: ***d: 0*** and ***u: 0***
FW	Selection of the firmware (FW) in the VDSL chipset. The following options are available - FS10.3 and FS10.4. Default setting: ***FS10.3*** (recommended)
Carrier set	Selection of the VDSL carrier set. The following sets are available: A43, B43, V43. Default setting: ***A43, B43, V43***
Protocol:	Selection of the transfer protocol that the ARGUS should use for the test (e.g. for an IP test). Protocols for ADSL: PPPoE (PPPoEoA) - Point-to-Point Protocoll over Ethernet PPPoA - Point-to-Point-Protokoll over ATM EoA (IPoE, IPoEoA) - Ethernet over ATM IPoA - Internet Protokoll over ATM Default setting: ***PPPoE***
MAC / VLAN:	MAC (Media Access Control) and VLAN (Virtual Local Area Network)
MAC address	Display and selection of the MAC addresses. The first two MAC addresses cannot be changed. If the default MAC address is selected, the ARGUS will use its own MAC address. Default setting: ***Default MAC address*** If Dynamic MAC Address is select a different MAC address will be used for each synchronization. A third MAC address can be entered: Mark and then press **<Edit>**.

	<Edit>	Open the MAC address for entry. Enter the address in hexadecimal from the keypad and the softkeys **<A..F>** (e.g. to enter a “C” press the softkey three times or to enter an “F” six times, then finish up by pressing **<OK>** to confirm your entry). Default setting: ***00:00:00:00:00:00***
	✓	Use the address. The new address is only saved temporarily and will not be available when the ARGUS is switched on again.
VLAN	Use VLAN:	Specifies whether or not VLAN should be used: yes, no. Default setting: ***No***
	ID:	Identifier for the VLAN to which the frame belongs. Every VLAN is assigned a unique number, the VLAN ID. A device, which belongs to the VLAN with the ID = 1, can communicate with every other device in the same VLAN, but not with a device in other VLANs (one with an ID other than 1, i.e. 2). Range: from 0 to 4095 Default: ***0***
	Priority:	User-priority information. An eight-level (3 bits) priority can be assigned to each frame. In this manner, it is possible e.g. to give priority to forwarding voice data, while HTTP data will be handled as a lower priority. Range: 0 to 7 Default: ***0***
PPP:	PPP (Point- to-Point Protocol) settings	

User name



Entry of the user name assigned (by the network operator)

Use the keypad to enter the user name. When the right softkey is pressed it assumes a different meaning and thus influences the entries made from the keypad (letters or digits):

Password	Entry of the password assigned by the network operator: For instructions, see User name
Set IP	If “Yes”, the IP address entered as own IP address (see page 64) will be used for the connection. Default setting: ***No***
Activation delay	After setting up the PPP connection, the ARGUS will first wait until the period specified in the “activation delay” has elapsed before beginning a test. Range: 2 to 10 seconds Default: ***2***
IP:	Internet protocol settings
IP mode	Setting the assignment of the IP addresses Static IP: fixed IP addresses DHCP client: IP address assigned by the server (remote end) Default setting: ***DHCP client***
local IP address	Own local IP address of the ARGUS Range: 0.0.0.0 to 255.255.255.255 Default setting: ***0.0.0.0*** (see RFC 3330 regarding assignment)
IP netmask	IP netmask Range: 0.0.0.0 to 255.255.255.255 Default setting: ***255.255.255.0*** (see RFC 3330 regarding assignment)
Gateway IP	Gateway IP address Range: 0.0.0.0 to 255.255.255.255 Default setting: ***0.0.0.0*** (see RFC 3330 regarding assignment)
DNS server	DNS Server 1 DNS Server 2 Entry of the IP address of the DNS server (DNS = Domain Name System) Range: 0.0.0.0 to 255.255.255.255 Default setting: ***0.0.0.0*** (see RFC 3330 regarding assignment)

DHCP client	DHCP timeout (setting of how long to wait for the IP address): Range: 1 to 9999 seconds Default: ***20***
	DHCP vendor ID: - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Enter the DHCP vendor ID in ASCII format Default setting: ***ARGUS***, for instruction see page 63 - HEX data: Enter the DHCP vendor ID in hexadecimal format Operation, see MAC address page 62
	DHCP vendor info: - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Enter the DHCP vendor info in ASCII format Default setting: ***ARGUS***, for instruction see page 63 - HEX data: Enter the DHCP vendor info in hexadecimal format, operation see MAC address page 62
	DHCP user class information - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Enter the DHCP user class i. in ASCII format Default setting: ***ARGUS***, for instruction page 63 - HEX data: Enter the DHCP user class information in hexadecimal format, operation see MAC address page 62
	DHCP user-defined option (Create a user-defined DHCP option) - Option number Range: 0 to 255 Default: ***255 = off*** - Format: Selection of the format: ASCII or hexadecimal - ASCII data: Entry of the DHCP user-def. option in ASCII format Default setting: ***ARGUS***, operation see page 63 - HEX data: Enter the DHCP user-defined option in hexadecimal format, operation see MAC address page 62
Bridge / Router	
Autonegotiation	
	Switch on or off: If autonegotiation is enabled, a network card can independently determine the correct transmission speed and duplex setting for the network port to which it is connected and can then configure itself accordingly. In the case of Ethernet, autonegotiation is based on L1 of the OSI Model (acc. to IEEE 802.3u standard). Default setting: ***on***

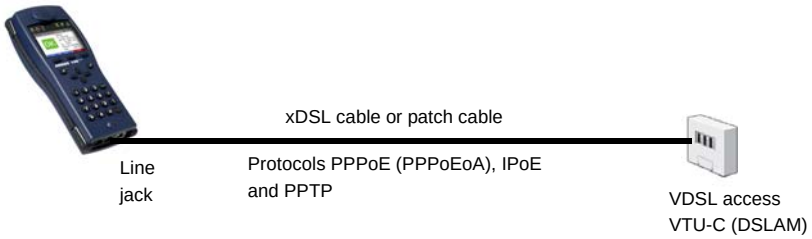
Test parameters	The test parameters are described in the chapters on IP and VoIP tests.
Data log	Data log on or off: This setting must be "ON“ in order to send a trace file to a PC see p. 77. Default setting: ***off***
Profile name	Enter the name of the profile

7.3 The ARGUS in the VTU-R Access Mode

7.3.1 Determining the VDSL connection parameter

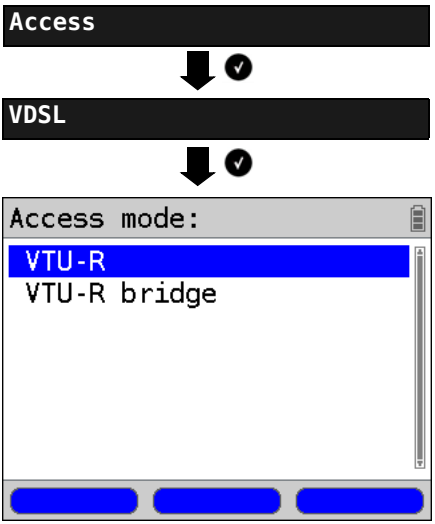
The ARGUS is connected directly to the VDSL access (either before or after the splitter) using the included xDSL cable or a patch cable. In this case, the ARGUS replaces both the modem and the PC. The ARGUS will set up a VDSL connection and determine all of the relevant VDSL connection parameters. The ARGUS displays the VDSL connection parameters and saves them after the connection is cleared down if desired.

Use only the cable included in the package!

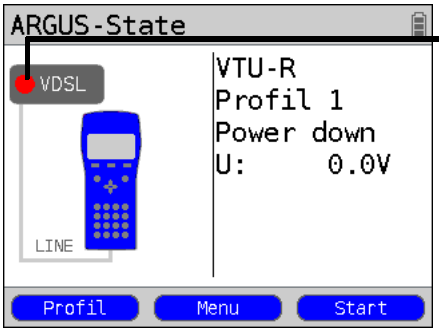


Setting the VTU-R access mode:

The ARGUS - Main menu



Continuation on next page



The VDSL test is not yet started!
red LED in the display.

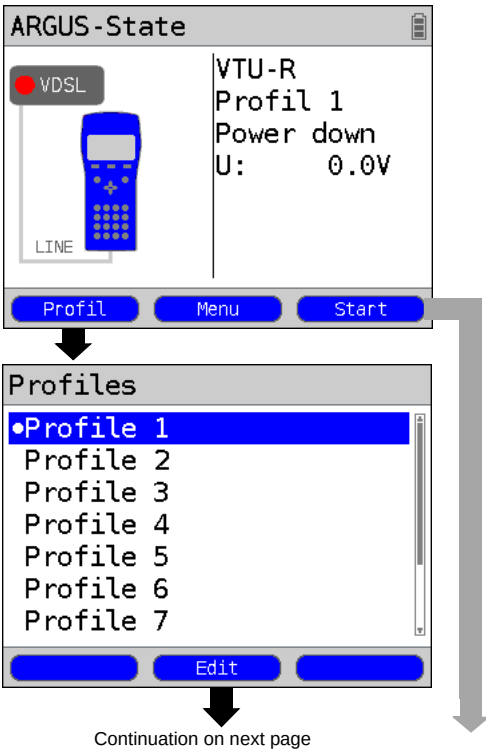
Key to the LED symbolized in the display:

Red LED	no test started
Yellow LED	test started
Green LED	A connection has been setup.

Setting Up a VDSL Connection

Profile settings:

When setting up the VDSL connection, the ARGUS uses the settings saved in the profile (see page 59):



ARGUS - State display

The ARGUS will use the default (preset) profile to setup the VDSL connection (in this example Profile 1)

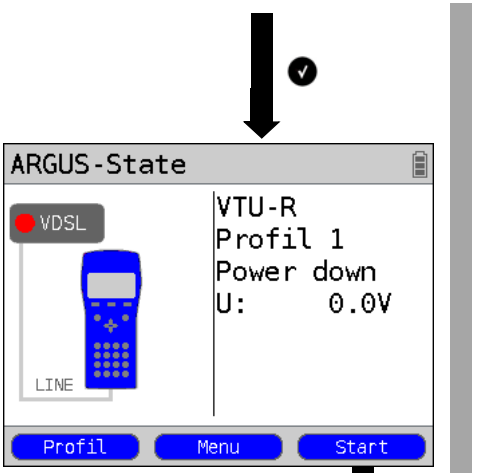
Display the profile.

The default profile will be marked in the display with a ● (in this example Profile 1).

Mark the profile.

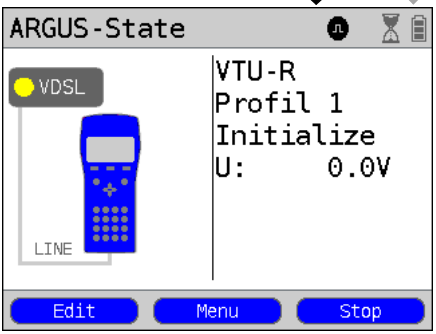
<Edit> Edit the marked profile. The settings of the selected profile can be edited here (see p. 59).

Continuation on next page

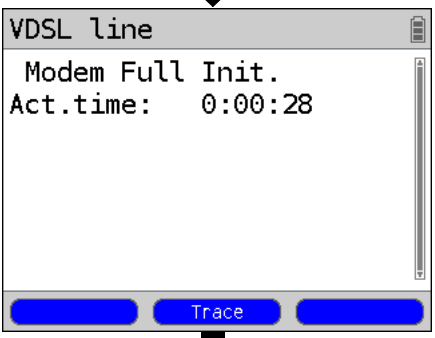


The ARGUS takes over the marked profile (in this example, Profile 1) as the default and returns to the State display.

Setting Up a VDSL Connection



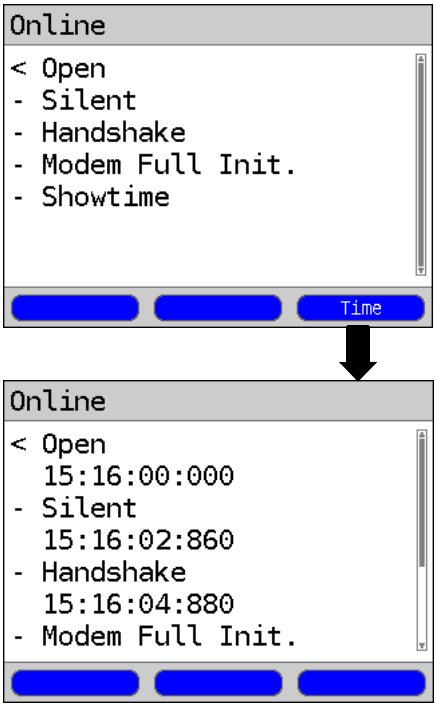
The ARGUS synchronizes with the DSLAM (the “Sync / L1” LED will flash and a yellow LED will be shown in the display).
The ARGUS will display the current connection status.



Display:

- Current connection status
- time elapsed since the start of synchronisation in h:min:sec.

Continuation on next page



Command symbols:

< = command sent from the ARGUS

> = command sent from the DSLAM

\- = connection status

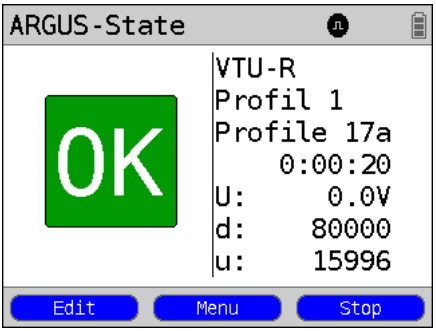
Display timestamp.

The ARGUS shows the time when (ARGUS internal clock, see page 124) the command arrived.

Return to the previous display

Connection successfully setup

Once the connection has been setup (“Sync / L1” LED on constantly and a green LED will be shown in the display), the ARGUS will determine and display the VDSL connection parameters. After the ARGUS has synchronized, please leave it connected to the VDSL access for at least another 20 seconds since the VDSL connection parameters supplied by the DSLAM cannot be stored in the ARGUS until this period of time has elapsed.



ARGUS – State display.

Display:

- Default (preset) profile, see page 59
- The VDSL Profile specified by the DSLAM:
  The VDSL2 standard supports eight different "Profiles“. Among other things these profiles specify the respective cutoff frequency, the separation between carrier frequencies as well as the signal strength generated. Due to the different definitions for the individual profiles, the maximum data transfer rates vary from profile to profile.
- Duration of the setup connection
- Interface's DC voltage
- d: Downstream data rate
- u: Upstream data rate

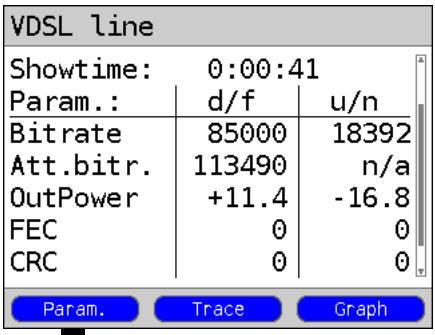
If the current data rates on the connection exceed the rated values (see page 62), the ARGUS will display "OK“, otherwise it will display "FAIL“.

<Edit> The preset profile (in this example, Profile 1) will be displayed. The VDSL access parameters are disabled. The other settings can be edited here (see page 20).

<Menu> Open the Main menu.

<Stop> Clear down the VDSL connection.

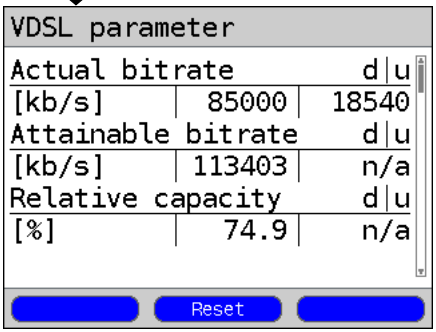
Continuation on next page



Display the VDSL connection parameters in brief.
- d/f: downstream/far
- u/n: upstream/ near

Scroll through the connection parameters.

<Trace> Display the trace data.

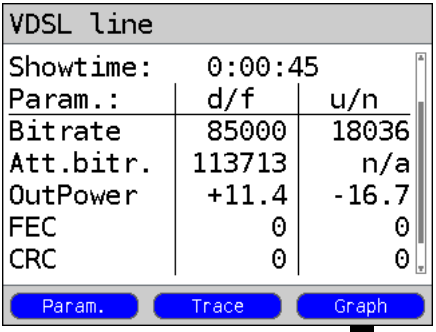


Display the connection parameters in long form for both downstream (d) and upstream (u) (see table page 75).

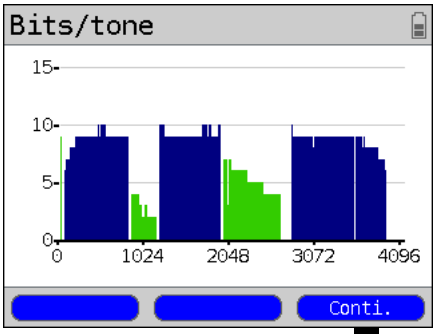
n/a	Not available
n/u	Not used
n/r	Not received

Scroll through the parameters

<Reset> Reset (zero) the FEC and CRC error counters.

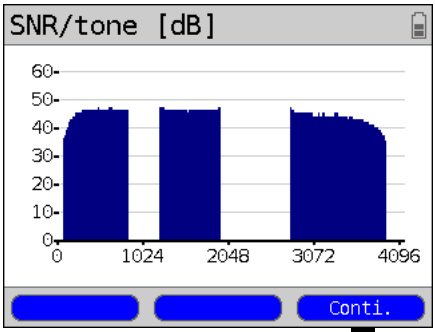


Continuation on next page

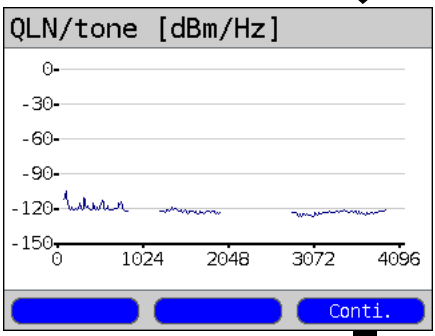


The bands for upstream and downstream change depending on the VDSL profile (green display upstream, blue display downstream, in this example DS1, US1, DS2, US2, and DS3)
Display the bit distribution,
e.g. bits transported per carrier frequency (tone).
y-axis: bits per carrier frequency (tone)
x-axis: tones (carrier frequencies)
Based on the bit distribution, it is possible to detect line disturbances (e.g. through HDB3, HDSL, RF etc.)

The ARGUS will return to the previous display



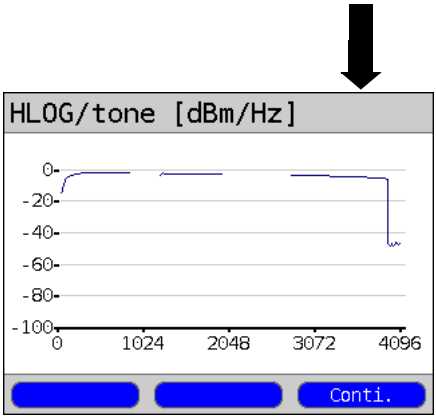
DIsplay the signal-to-noise ratio for each tone (downstream only, in this example DS1, DS2, and DS3)
y-axis: SNR in dB
x-axis: tones (carrier frequencies)
It is possible to detect disturbances on the individual tones (carrier frequencies) or entire bands.



Display of the quiet level noise (QLN) for each tone
y-axis: QLN in dBm/Hz
x-axis: tones (carrier frequencies)
It is possible to detect disturbances on the individual tones (carrier frequencies)

The display of the upstream QLN for each tone depends on the DSLAM (VTU-C). In this example, a QLN per tone can be seen in which the DSLAM has not sent any information regarding the VTU-R.

Continuation on next page



Display of the amplitude component of the transfer function (Hlog) for each tone
y-axis: Hlog in dBm/Hz
x-axis: tones (carrier frequencies)
It is possible to detect disturbances on the individual tones (carrier frequencies).

The display of the upstream Hlog per tone depends on the DSLAM (VTU-C), also see QLN / Tone.

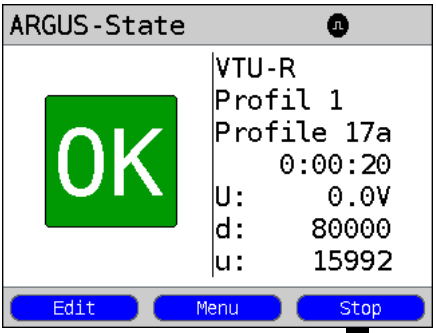
<Continue> The ARGUS will return to the previous display

The ARGUS determines the following VDSL connection parameters:

VDSL connection parameters	
Actual bitrate	The actual useable bitrate in kbit/s.
Attainable bitrate	This is the theoretically attainable bitrate in kbit/s.
Relative capacity	Utilization of the line as a percentage.
SNR margin	SIgnal-to-noise ratio in dB in the bands used. The SNR margin is a measure of how much additional noise the transmission can withstand and still achieve a BER (Bit Error Rate) of 10^{-7}. Unused bands will be marked as n/u (not used).
Loop attenuation	The line's attenuation in dB over its entire length and bandwidth in the relevant bands. Unused bands will be marked as n/u (not used).
Signal attenuation	Signal attenuation in dB in the relevant bands. Unused bands will be marked as n/u (not used).
Output power	Output power in dBm
Interleave delay	The delay (in msec.) caused by interleaving the data blocks.
Impulse noise prot.	The Impulse Noise Protection is an indicator of the quality of the protective mechanism as far as impulse noise is concerned. The number of DMT symbols, which can be completely distorted in succession, without an error occurring on the higher layers.
FEC	Forward Error Correction The number of transmission errors corrected using the cell checkbytes of a codeword. f (far): Errors that the DSLAM has detected and informed the ARGUS. n (near): Errors which were detected by the ARGUS in the blocks it received.

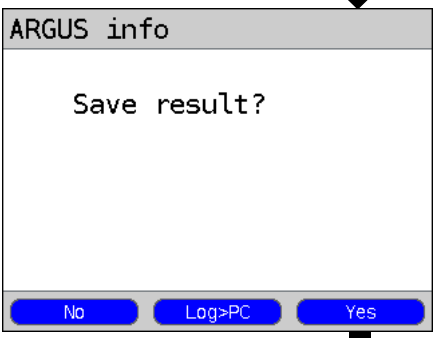
CRC	Cyclic Redundancy Check The superframe checksum sent from the opposing end does not match the one calculated locally. Possible cause: Fault on the line. f (far): Errors that the DSLAM has detected and informed the ARGUS. n (near): Errors which were detected by the ARGUS in the blocks it received.
Reset	Shows how often the error counters have been reset by the user with the **<Reset>** softkey.
Resync	Number of times that the ARGUS has been resynchronized.
Showtime no sync	Shows how often the connection has reached the status "Showtime“ without establishing a permanent, stable connection.
Vendor far	The manufacturer of the VTU-C side shown as a hexadecimal number
Version	Vendor Specific Information, generally shows the version of the software running at the VTU-C (DSLAM) end.
Vendor near	The manufacturer of the ARGUS chipset (VTU-R) coded as a hexadecimal number
Version	Vendor Specific Information, shows the software version of the ARGUS.

Clear down the VDSL connection and save the results

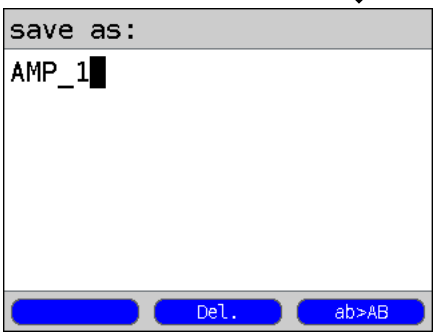


ARGUS – State display

Clear down the VDSL connection.



<Log>PC>:
The ARGUS will send the trace file to the connected PC, which must be running WINplus or WINanalyse. The data will be saved in the standard "pcap" format and can be decoded with a freeware program (e.g. Wireshark). The setting “Data log” must be set to “on”. In bridge mode, two log files will be loaded to the PC, one for the WAN and one for the LAN side.

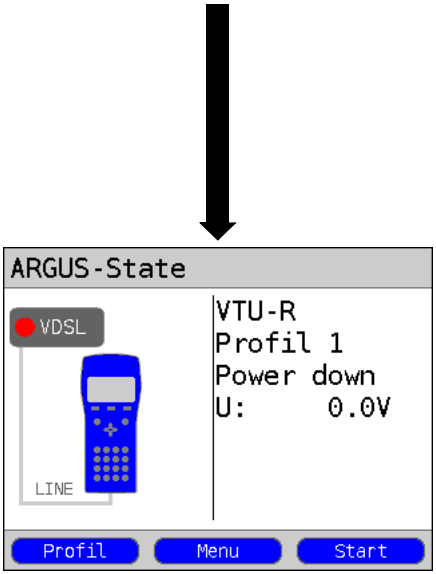


The ARGUS saves the VDSL connection parameters together with the trace data in the first available memory location, which can be assigned any name (see page 119).
The name for the memory location is entered using the keypad (default: AMP_1, AMP_2, ... or the call number of the access under test if the number has been entered into the speed-dialling memory (see page 127)).

If the memory is full, you must manually select a memory location to be overwritten.

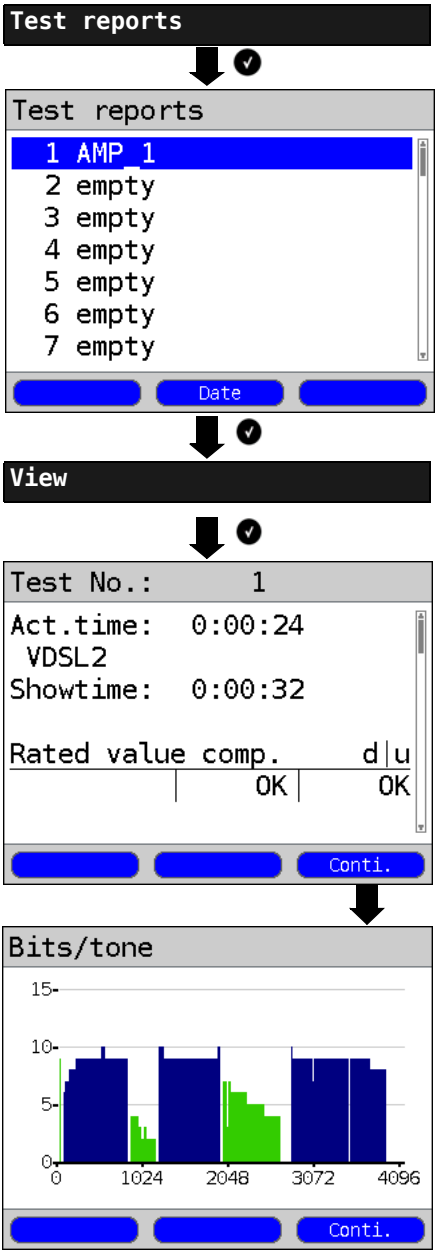
Store the result

Continuation on next page



Once the results have been successfully saved in memory, the ARGUS will return to the State display.
A new test can be started by pressing **<Start>**.

Displaying the Saved Test Reports



The ARGUS - Main menu

Mark the saved test results.

<Date> Display of the date and time that the results were saved.

Display the test results:
The ARGUS displays the VDSL state and the VDSL connection parameters.

Scroll through the VDSL connection parameters.

Bit distribution display (Bits/tone)

<Continue> Display of the signal-to-noise ratio for each tone (SNR / tone), the QLN / tone, the Hlog / tone and the trace data.

Close the results display.

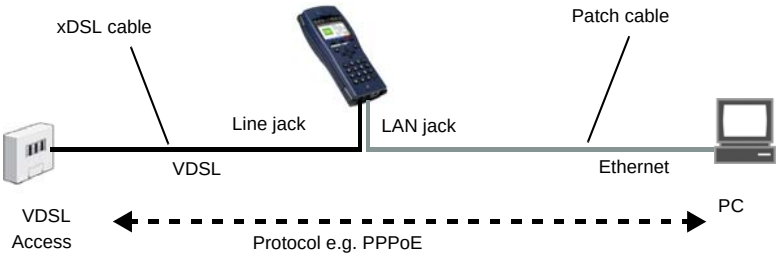
7.3.2 Tests in VTU-R Access Mode

Depending on the protocol, the following tests are supported:

IP tests, see page 83	- IP ping - Traceroute - HTTP download
VoIP tests, see page 104	- VoIP telephony

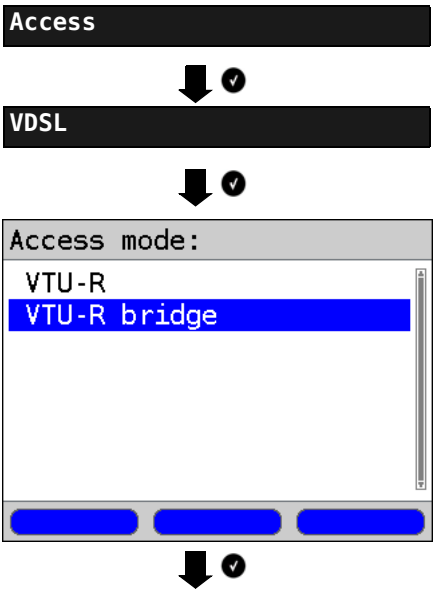
7.4 The ARGUS in the VTU-R Bridge Access Mode

Connect the ARGUS to the VDSL access using the xDSL cable and to the PC with a patch cable.
In bridge mode, the ARGUS acts like an VDSL modem, i.e. the ARGUS passively passes all packets from the Ethernet side to the VDSL access (and vice versa). In this case, the PC is responsible for setting up the connection.

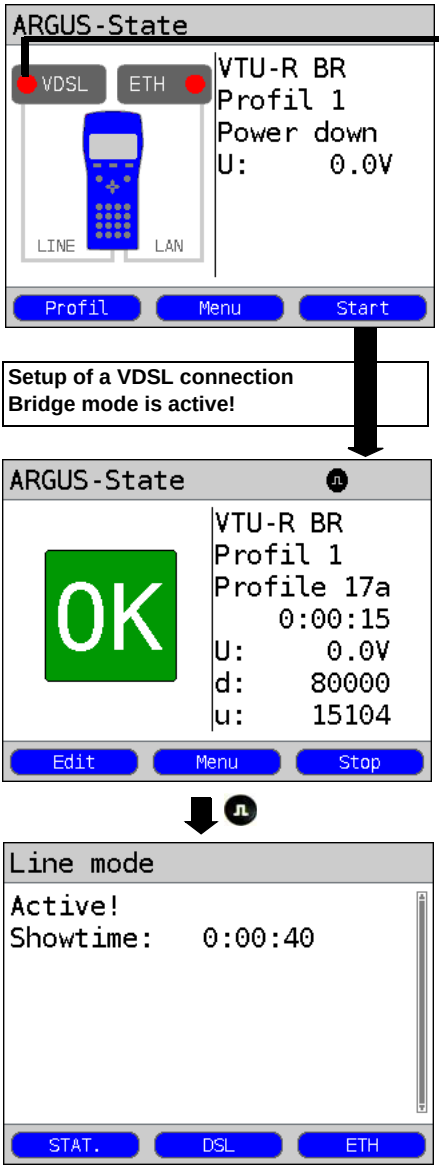


7.4.1 Setting the access mode to VTU-R bridge

The ARGUS - Main menu



Continuation on next page



The VDSL test is not yet started!

Key to the LED symbolized in the display:

Red LED	no test started
Yellow LED	test started
Green LED	A connection has been setup.

Display:

- Access mode (BR = Bridge)
- Default (preset) profile, see p. 59
- Current State

  Interface's DC voltage

<Profile> Display the profile (page 68) VDSL settings:

Access parameters / Phys. parameters / VDSL /
- Target value or FW

<Stop> Deactivate bridge mode, Clear down the VDSL connection

Display Line mode

<Stat.> **<DSL>**
- WAN Ethernet statistics
- VDSL connection parameters
- Trace data
- Bits, SNR, QLN, Hlog/tone

<ETH>
- Ethernet Phys. parameters

This information can also be called up from the "Line status" menu.

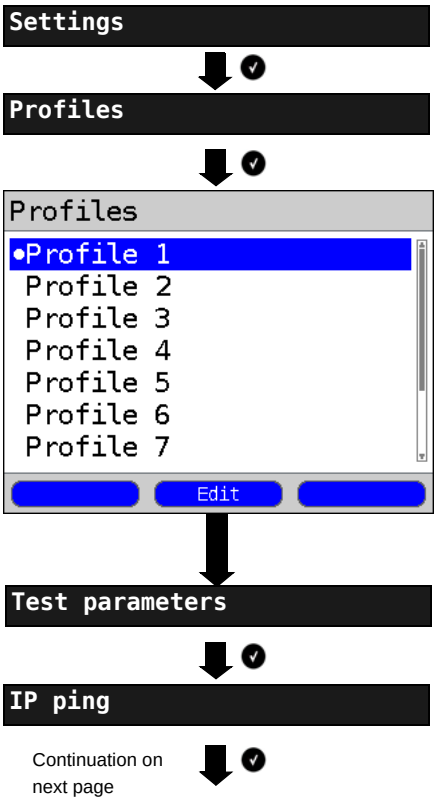
8 IP tests

8.1 IP ping

In the IP ping test, the ARGUS checks whether it is possible to setup a connection to an Internet Service Provider (ISP) via an xDSL connection (over a DSLAM): The ARGUS sends a test packet to a predefined IP address (remote site) and then waits for a packet in reply. Based on the received packet, it is possible to evaluate the IP network availability and delay. It is also possible to determine the path's maximum data packet size.

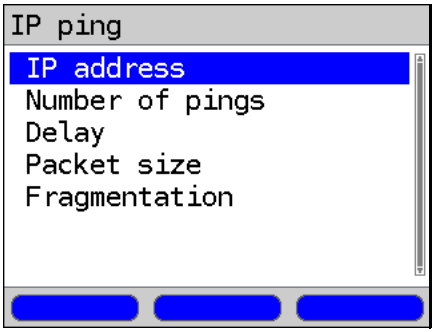
The following parameters are required for the IP ping:

Protocol independent parameters



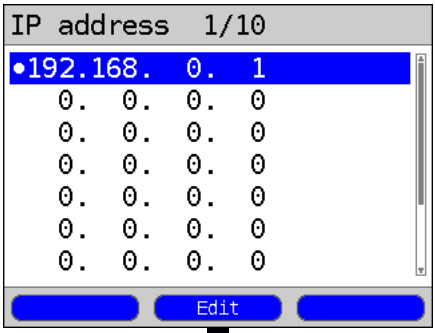
Select a profile for editing. The selected profile will be marked blue in the display. The default profile will be marked in the display with a ●. The ARGUS will use the parameters in the default (preset) profile to setup the xDSL connection and for the IP ping test.

The ARGUS uses the marked profile as the default profile and returns to the Settings menu.



View and edit the marked parameters if necessary

IP ping:	
IP address	This is the address of the remote site. The ARGUS can save up to 10 IP addresses. The saved IP addresses are available to all of the profiles.

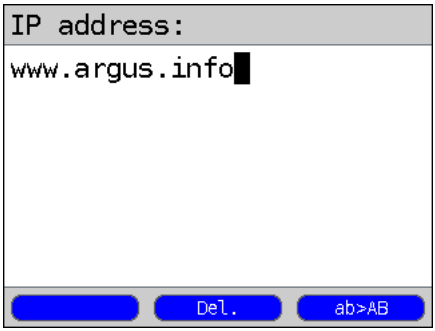


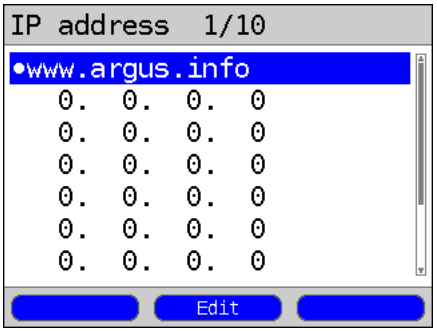
The ARGUS shows the memory locations (a total of ten) available for storing IP addresses. Use the cursor keys to mark the memory location with the IP address that you wish to edit (in this example, the first memory location is marked (1/10).

<Edit> Open the marked IP address to edit it.

The address can be entered as an IP address (number) or as a name.

Continuation on next page





Enter the name of the IP address. Entry using the numeric keypad. Use the softkey on the right to shift the keypad (the softkey on the right assumes a different meaning when pressed):

<12>ab> entry of the digits 0 to 9 plus * and #

<ab>AB> Entry of lowercase characters (e.g. to enter a "c" press the "2" on the keypad three times), plus @, /, -, and .

<AB>12> entry of the uppercase characters and @, /,- and .

<Del.> Delete the character before the cursor

✓ Set the marked IP-address as the default address

When entering the IP address as a number:

Move the cursor within the line.

<Del.> Delete the character before the cursor

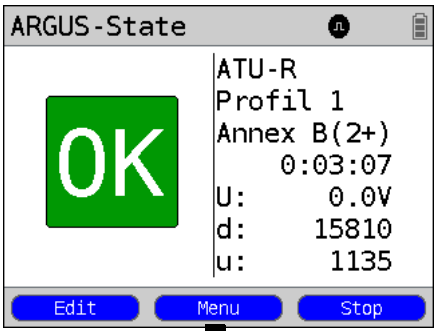
Number of pings	Enter the number of test packets that the ARGUS should send to the IP address. If you enter a zero ("0"), the ARGUS will send packets continuously until the test is stopped manually. Range: 1 to 99999 Default: ***10***
Pause	This setting determines the amount of time that the ARGUS will wait between sending test packets. Range: 0.1 to 9.9 seconds Default: ***1 second***
Packet size	This setting determines the size of the test packets. By varying the size, it is possible to determine the maximum data packet size and the relationship between size and response time. Range: 36 to 55555 bytes Default setting: ***84 bytes***

Fragmentation	This parameter sets the fragmentation: Default setting: ***on***	
	on	Depending on the network (or router), test packets may be divided into multiple packets.
	off	Fragmentation is not permitted, i.e. the test packets may be rejected by the network (or router). In this case, the ARGUS will not receive a packet in reply.
	auto	The ARGUS determines the maximum packet size for the path to the destination address (Path-MTU) and splits the test packet into smaller packets. These can then be sent with the minimum of delay (since the network/router need not fragment the test packet).

For information on protocol-dependent parameters on an xDSL access, see:

Protocol	PPPoE (PPPoEoA) or PPPoA (ARGUS configured as terminal)	IPoA/EoA (or IPoE) (ARGUS configured as terminal)
Access parameter	ATM - VPI / VCI - Encapsulation	ATM - VPI / VCI - Encapsulation
	PPP - User name - Password - Set IP - Activation delay	
	xDSL mode	xDSL mode
		IP - IP mode - Own IP address - IP netmask - Gateway IP - DNS server - DHCP client
	MAC / VLAN (with PPPoE) - MAC address - VLAN	MAC / VLAN (with EoA) - MAC address - VLAN

Starting an IP ping (in this example on an ADSL access in ATU-R access mode):



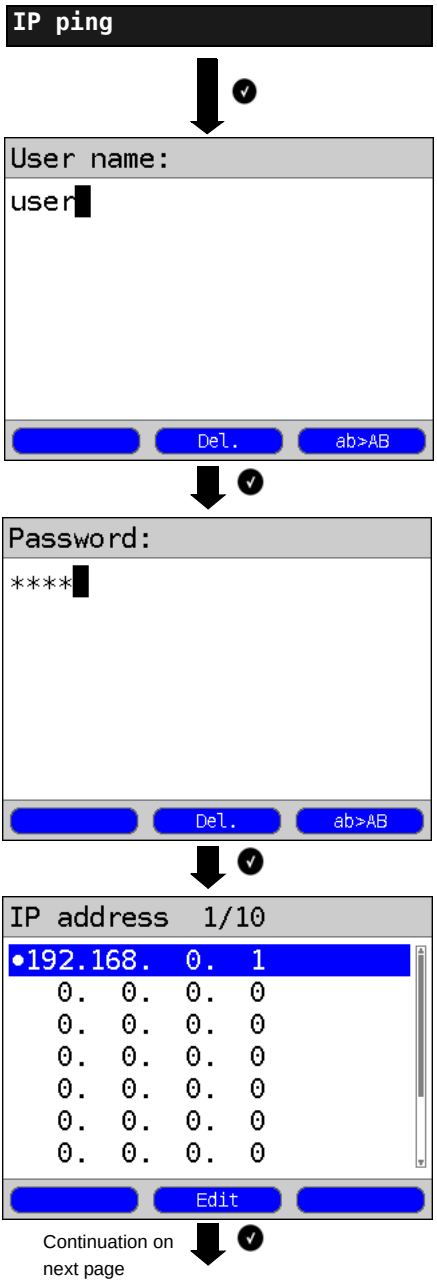
Continuation on next page

Setup the xDSL connection.

The profile shown on the display will be used for the IP ping (in this example, Profil 1).

<Edit> The ARGUS will edit the preset profile (in this example, Profil 1). The xDSL access parameters are disabled. The other parameters can be edited here.

Open the Main menu.



If no connection has been setup (by pressing **<Start>** in the State display), a connection will be setup automatically at this point using the default profile (see page 40).

Depending on the protocol and access: The ARGUS will display the user name saved in the profile for the PPP connection. The user name can, however, be changed.

If the user name is changed here, it will only be placed in temporary storage; the profile itself is not modified.

If you change the user name, you must enter the password again.

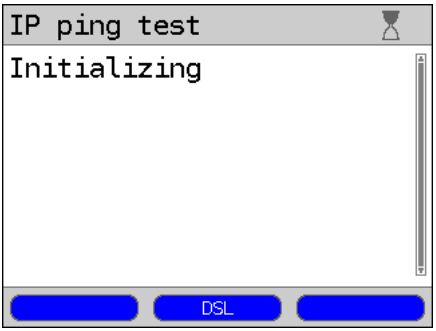
The password entered here is not saved in the profile.

If the required Layer 3 protocol has already been setup (e.g. when another test has been run that required that protocol) the user name and password queries will not be displayed.

The ARGUS displays the IP address stored in the profile.

✓ Select the IP address to use for the ping; the default address is marked with an ●.

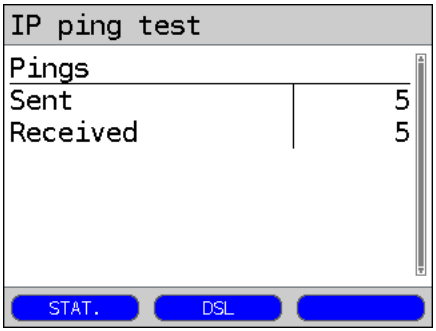
<Edit> Edit the IP address, see page 84



Initializing
Setup the protocol. The protocol will be cleared down when the connection is cleared down and will therefore no longer be available for other tests.

<DSL> Display the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

IP ping



The IP ping will start automatically.

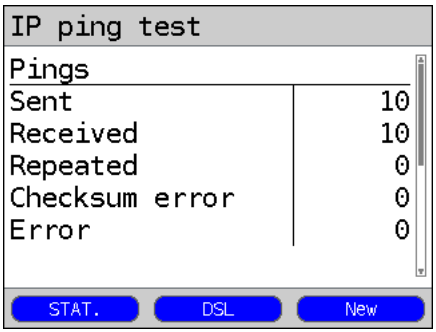
During the IP ping, the display shows:
- Number of test packets sent
- The number of packets in reply

<Stat.> Depending on the access mode and protocol, the ARGUS will display the BRAS, IP, PPP or WAN statistics.

<DSL> Display the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

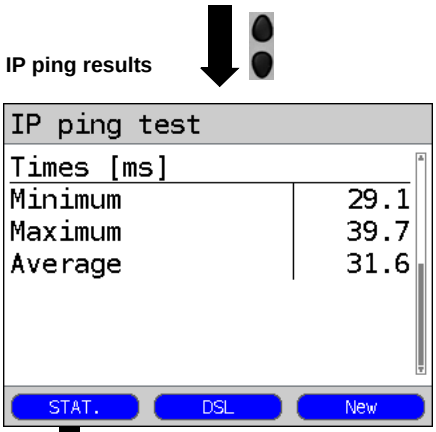
Test Canceled
The ARGUS will display the results collected thus far and will inquire whether to save them (see page 83).

IP ping results



After the test has run, the ARGUS will display the results:
- Number of packets sent
- Number of packets received
- Number of packets sent again
- Checksum error
- Faulty packets received

IP ping results

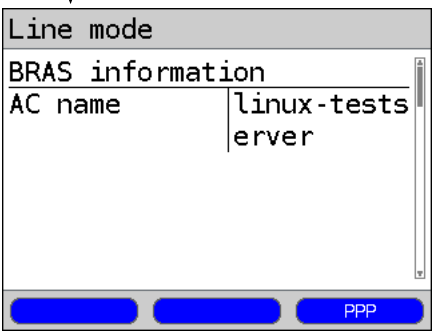


- Minimum packet round-trip delay in ms
- Maximum packet round-trip delay in ms
- Average packet round-trip delay in ms

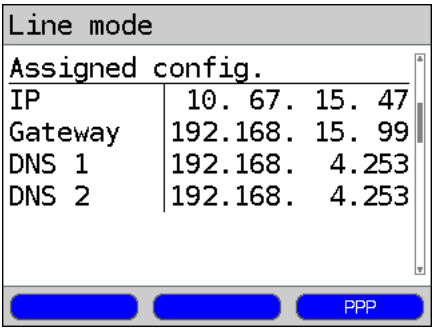
<Stat.> see page 89

<DSL> see page 89

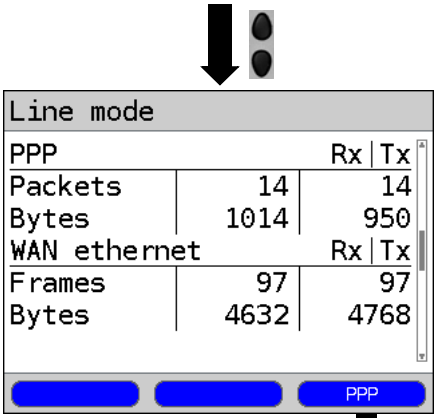
<New> Start a new IP ping test

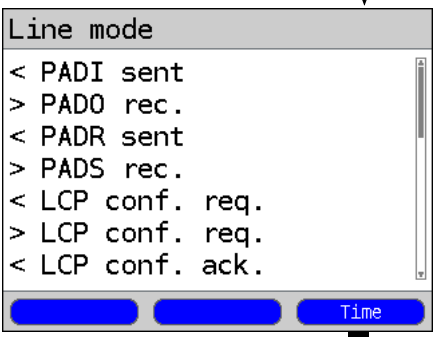


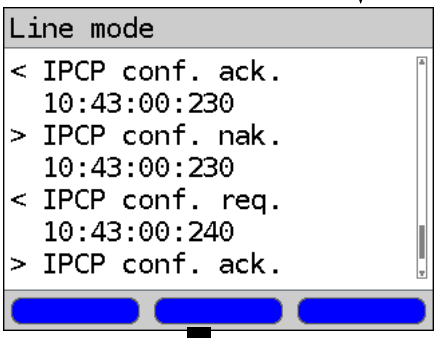
BRAS information:
The ARGUS displays (for the PPPoE protocol only) the BRAS (Broadband Remote Access Server) information:
- AC (Access Server) name
- Service name



Assigned configuration:
The ARGUS will display the IP configuration assigned by the server.
- IP address received
- Gateway IP address
- DNS server available







Continuation on next page

PPP information:
The ARGUS will display the number of PPP packets and bytes received (Rx) and sent (Tx).

WAN Ethernet:
The ARGUS will display the number of Ethernet frames and bytes received (Rx) and sent (Tx).

<PPP>
When the **<PPP>** softkey is pressed, a PPP trace will open in which the PPPoE discovery information is displayed:

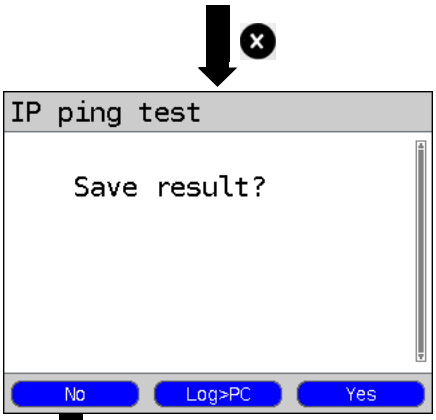
Command symbols:

< = command sent from the ARGUS

> = command sent from the DSLAM

- PADI:
  PPPoE Active Discovery Initiation
- PADO:
  PPPoE Active Discovery Offer
- PADR:
  PPPoE Active Discovery Request
- PADS:
  PPPoE Active Discovery Session confirmation
- PADT:
  PPPoE Active Discovery Termination
- LCP:
  Link Control Protocol
- IPCP:
  Internet Protocol Control Protocol
- PAP:
  Password Authentication Protocol

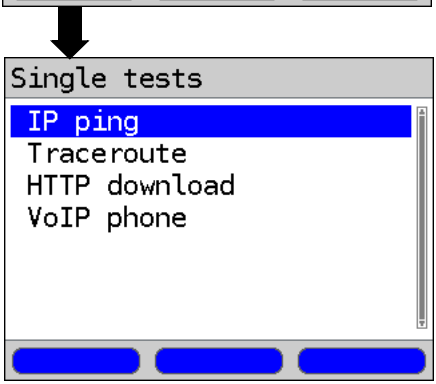
<Time>
The **<Time>** softkey is used to tag the individual messages with times from the ARGUS system clock.



Close the results display.

<Yes> The ARGUS will save the result of the IP ping test in the first available memory location in the internal memory (see page 119).

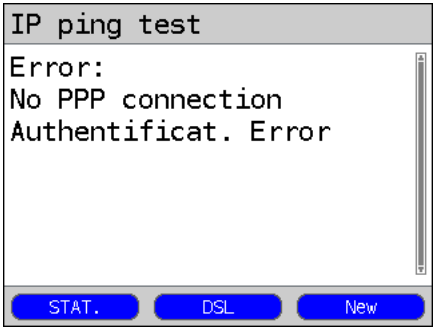
<Log>PC>:
The ARGUS will send the trace file to the connected PC, which must be running WINplus or WINanalyse. The data will be saved in the standard "pcap" format and can be decoded with a freeware program (e.g. Wireshark). The setting “Data Log” must be set to “on” before starting test. In bridge mode, two log files will be loaded to the PC, one for the WAN and one for the LAN side.



A new single test can be started since the xDSL connection and the protocol are still setup (to clear the connection down, press **<Stop>** in the ARGUS State display).

IP ping – Error messages

If an error occurs, the ARGUS will display an error message.



<Stat.> Depending on the access mode and protocol, the ARGUS will display the BRAS, IP, PPP and WAN statistics.

<DSL> Display the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

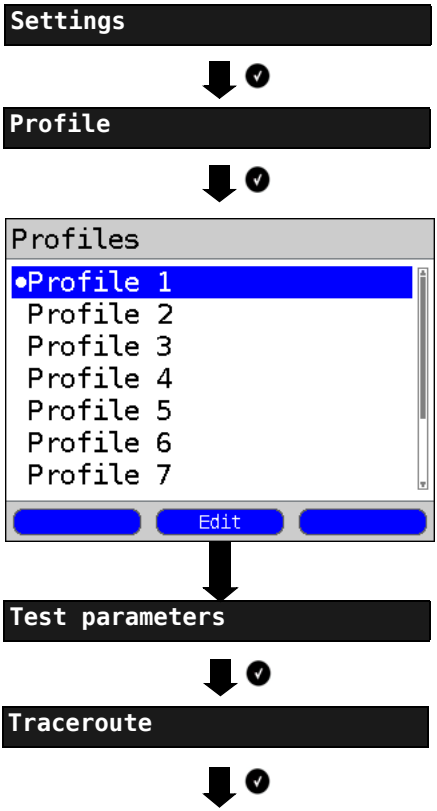
<New> Start a new IP ping test

For a description of the error messages, please see the appendix.

8.2 Traceroute

In an IP Traceroute test, the ARGUS sends test packets and then displays a list of all of the network nodes (hops) and their response times on the way to the destination address. This information can then be used to precisely locate delays in the network.
The following parameters (which are stored in the profile) are required for the IP Traceroute test:

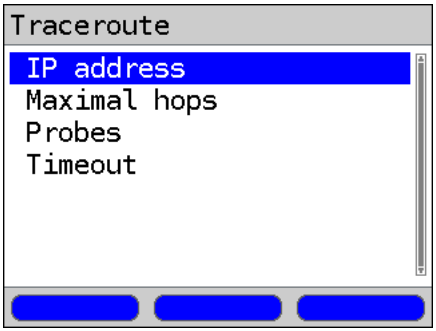
Protocol-independent parameters:



Continuation on next page

Select a profile for editing. The selected profile will be marked blue in the display. The default profile will be marked in the display with a ●. The ARGUS will use the parameters in the default (preset) profile to setup the xDSL connection and for the IP Traceroute test.

The ARGUS uses the marked profile as the default profile and returns to the Settings menu.



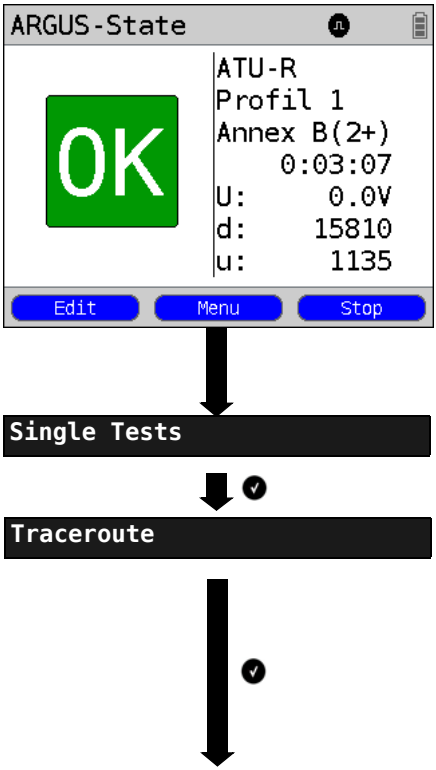
Edit the marked
parameters if necessary

Traceroute:	
IP address	This can be entered as an IP number or as a name (for instructions, see IP Ping / IP address). Default setting: ***www.argus.info***
Maximal hops	This sets the maximum number of hops that will be taken in the path to the destination node. Range: 1 to 25 Default: ***25***
Probes	This sets the number of attempts that will be made to get a response from a network node. Range: 1 to 10 Default: ***3***
Timeout	This sets the maximum amount of time that the ARGUS will wait for a response from a network node. Range: 0.05 to 9.9 seconds Default: ***3 seconds***

For information on protocol-dependent parameters, see page 87.

Start an IP Traceroute

(example on an ADSL access in access mode ATU-R)



Setup the xDSL connection.

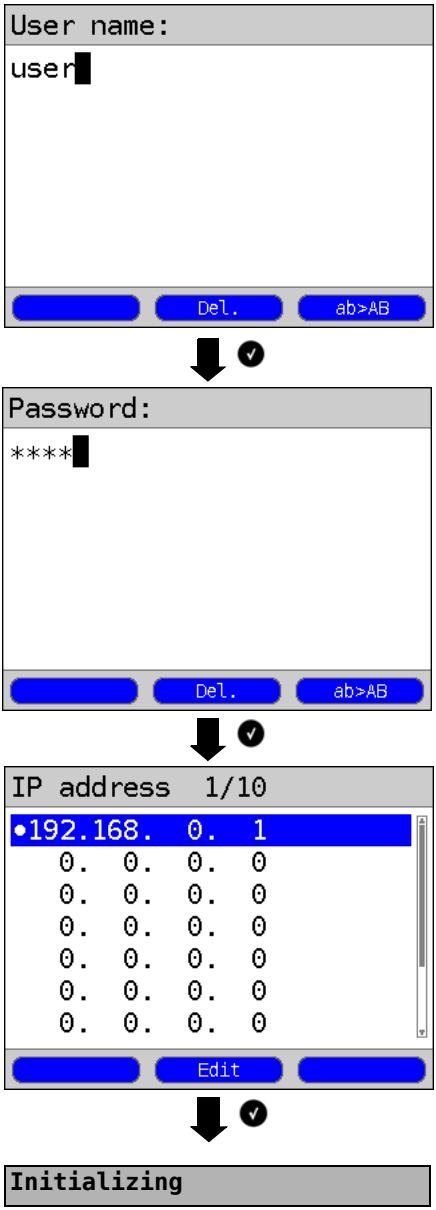
The profile shown on the display will be used for the IP Traceroute (in this example, Profil 1).

<Edit> To edit the preset profile (in this example, Profil 1).
The access parameters are disabled. The other parameters can be edited here.

Open the Main menu.

If no connection has been setup (by pressing **<Start>** in the State display), a connection will be setup automatically at this point using the default profile (see page 40).

Continuation on next page



Depending on the protocol and access: The ARGUS will display the user name saved in the profile for the PPP connection. The user name can, however, be changed.

If the user name is changed here, it will only be placed in temporary storage; the profile itself is not modified.

If you change the user name, you must enter the password again

The password entered here is not saved in the profile.

The ARGUS displays the IP address stored in the profile.

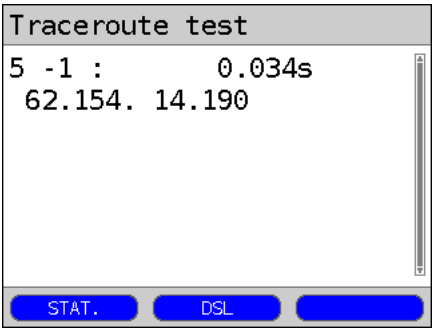
Select the IP address to use for the Traceroute; the default address is marked with an ●.

<Edit> To edit the IP address
For more information, see page 84

Initializing

<DSL> Display the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

Traceroute

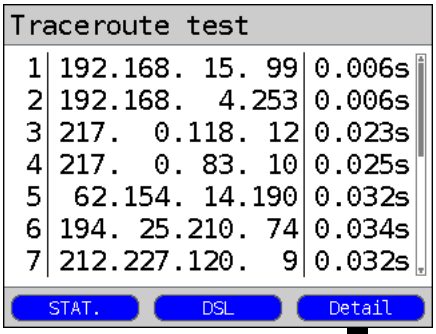


The IP Traceroute will start automatically.

During the IP Traceroute, the display shows:

- the current hop and probe (in the example 5 -1: i.e. 5th hop and 1st probe)
- Response time of the hop in the current probe (0.034 seconds)
- The IP address of the current hop (in this example, 62.154.14.190)

Traceroute result



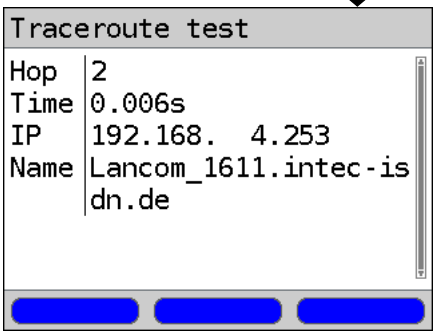
<DSL> Display the xDSL connection parameters, trace data, bit distribution etc.

<Stat.> Depending on the access mode and protocol, the ARGUS will display the BRAS, IP, PPP and WAN statistics.

Cancel Test
The ARGUS displays the results determined up to this point and asks whether it should save them.

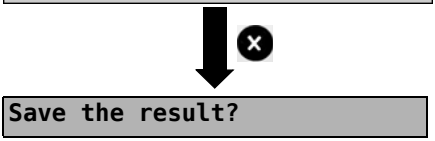
Display after the Traceroute has been run:

- all hops and their average response times (averaged over all of the probes), in this example 2nd hop with an average response time of 0.006 seconds and the IP address 192.168.4.253



<Detail> Displays the IP address of the hop as a name (if possible). The details of the hop, which is at the top of the list shown above, will be displayed.

Close the results display

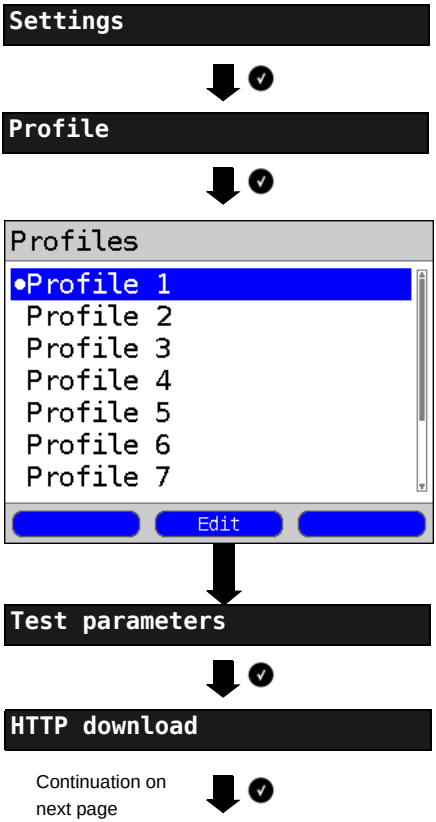


For information on saving the IP Traceroute results, see IP Ping page 89.
“Sending the Trace file to a PC”, see IP Ping page 89.

8.3 HTTP Download

In the HTTP download test, the ARGUS will attempt to download data from a web site or file. The ARGUS will display the current net download rate (the user data of the IP packets) and once the HTTP download is over the average speed (in the case of multiple download attempts).
The following parameters (which are stored in the profile) are required for the HTTP download:

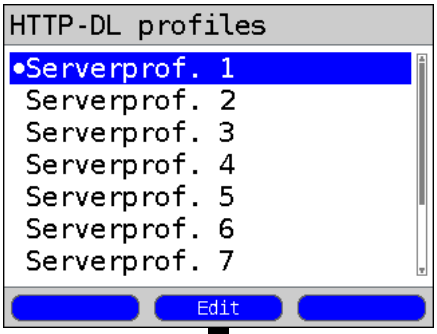
Protocol-independent parameters:



Select a profile for editing. The selected profile will be marked blue in the display. The default profile will be marked in the display with a ●. The ARGUS will use the parameters in the default (preset) profile to setup the xDSL connection and for the HTTP download.

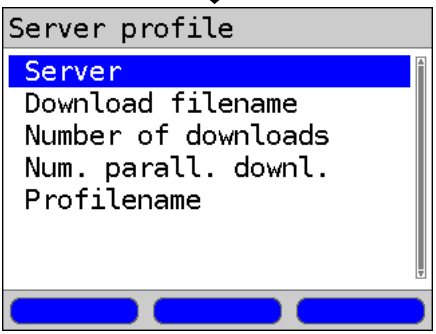
The ARGUS uses the marked profile as the default profile and returns to the Settings menu.

Since it is not possible to accurately determine the transmission speed if the duration of the download test is less than 10 seconds, you should download a reasonably large file (taking into consideration the access speed).



Ten user-defined server profiles are available.

Edit the marked server profile.



Edit the marked parameters

Server profile:	A total of up to 10 user-defined server profiles can be created. These server profiles will then be used for the HTTP download tests. The profiles hold all of the parameters required for the HTTP download.
Server	Enter the IP address of the server from which the ARGUS should download the file. For information on the softkeys, see page 84
Download filename	The name of the file that the ARGUS should retrieve in the download test (HTTP download). When entering a www address alias, please see page 100. For information on the softkeys, see page 84.
Number of downloads	This sets how often the ARGUS will retrieve the data (download file) from the “source” address in the download test. "Zero“ means continuously. In which case, the test must be terminated manually. Range: 1 to 9999 Default: ***3***

Num. parall. downl.	The number of packets into which the requested download should be divided (see page 100). Range: 1 to 15 Default: ***10***
Profile name	Entry of a name for the profile

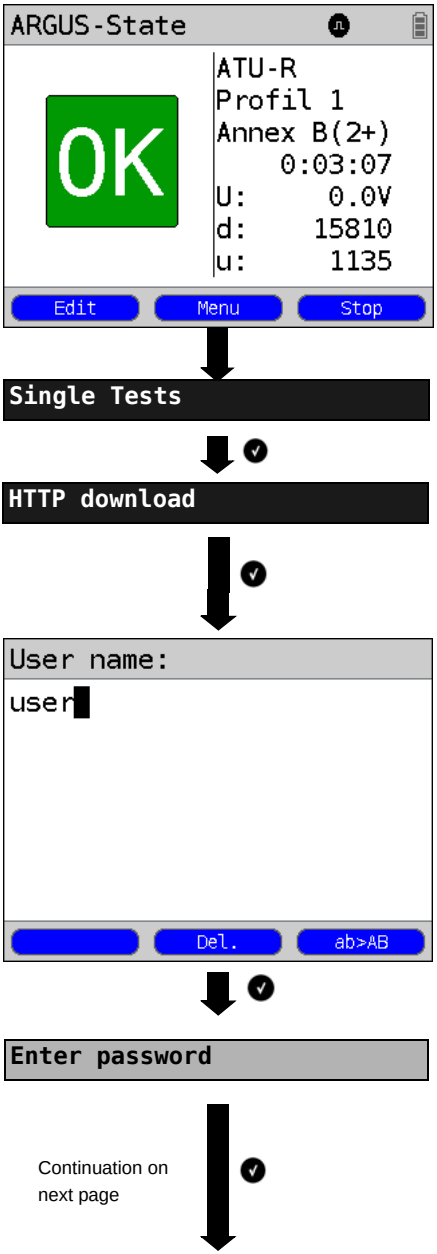
If an alias www address is entered as the "Source/Destination" address, the ARGUS will "only" download the one HTML page during the HTML download test. The ARGUS does not evaluate the HTML code, so any link to a “true” www address will be ignored. In this case, the ARGUS will not display an error message since the “Source/Destination” address specified will have been loaded without error.
However, since it is not possible to accurately determine the transmission speed if the duration of the download test is less than 10 seconds, you should download a reasonably large file (taking into consideration the access speed).

When entering the “Source” address (server address and download filename) make certain that you use the correct notation (upper and lower case), otherwise the ARGUS will report an Error 301 (Moved Permanently) or Error 404 (Not Found).

If the ARGUS requests multiple downloads, it will reduce the number of downloads requested to suit the number of downloads supported by the server. This may result in a deviation from the parameters set. This can be the case e.g. if the size of the requested file is unknown.

For information on protocol-dependent parameters, see page 87

Start the HTTP download (in this example: ADSL access in access mode ATU-R)



Setup the xDSL connection.

The profile shown on the display will be used for the HTTP download (in this example, Profil 1).

<Edit> To edit the preset profile (in this example, Profil 1).
The xDSL access parameters are disabled. The other parameters can be edited here.

Open the Main menu.

If no connection has been setup (by pressing **<Start>** in the State display), a connection will be setup automatically at this point using the default profile (see page 40).

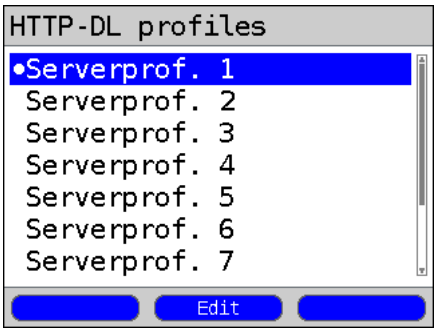
Depending on the protocol and access: The ARGUS will display the user name saved in the profile for the PPP connection. The user name can, however, be changed.

If the user name is changed here, it will only be placed in temporary storage; the profile itself is not modified.

If you change the user name, you must enter the password again

The password entered here is not saved in the profile.

Continuation on next page



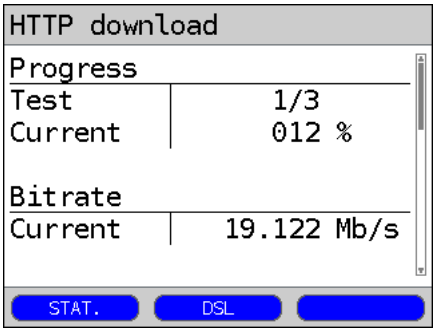
Mark the server profile (the default profile is marked with a ●).

<Edit> Edit the marked profile
For information on changing the individual settings, see page 99.

Initializing

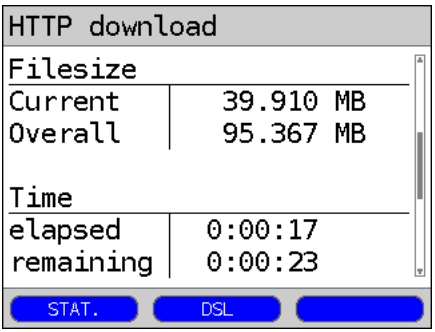
<DSL> Display
the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

HTTP download



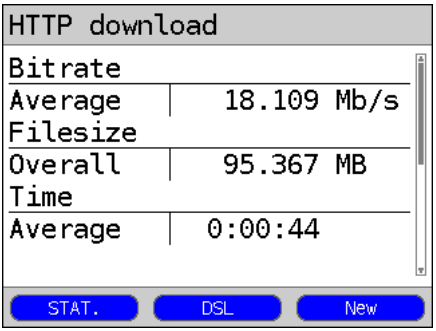
The HTTP download will start automatically.

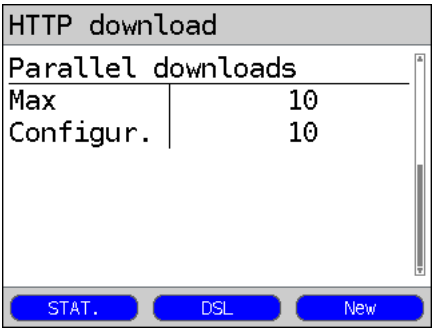
During the HTTP download, the display shows:



- Current download / total downloads
  In the example the first download attempt of a total of three (1/3) is shown.
- the amount of data already loaded
  (in the example, 12%)
- current net download rate
  (in the example, 19.122 Mbit/s)
- the number of bytes already loaded
  (in the example, 39.910 MB)
- Size of the file to be downloaded
  (in the example, 95.367 MB)
- Current loading time in h:min:s
- Remaining loading time in h:min:s
- Number of parallel downloads

HTTP download results





<DSL> Display the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

<Stat.> Depending on the access mode and protocol, the ARGUS will display the BRAS, IP, PPP and WAN statistics.

Cancel the test.

Display results:

- calculated average speed of all of the downloads (in the example, 18.109 Mbit/s)
- size of file loaded (in the example, 95.367 MB)
- average time required for a download in h:min:s.ms
- current parallel downloads
- configured parallel downloads

<Stat.> see above

<DSL> see above

<New> Start a new HTTP download

Close the results display

For information on saving the HTTP download results, see page 89. “Sending the Trace file to a PC”, see page 89.

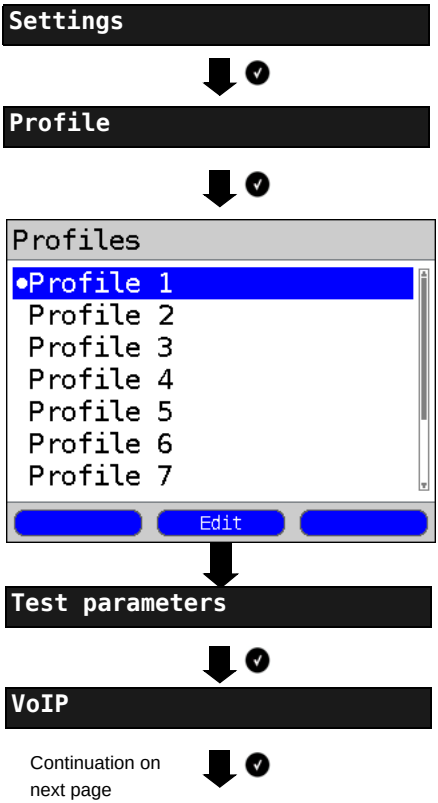
9 VoIP test

9.1 VoIP telephony

The ARGUS acts as a VoIP terminal with which a telephone (voice) call can be set up. The ARGUS uses the Session Initiation Protocol (SIP) as the signaling protocol for VoIP. VoIP calls can be set up with or without a registrar or proxy. The ARGUS can be used to setup a VoIP connection (DSL telephony) via xDSL. The MOS / R factor of the RTP data stream will determined and displayed as an evaluation of the voice quality.
Three "VoIP Profiles" can be configured for use in VoIP telephony.

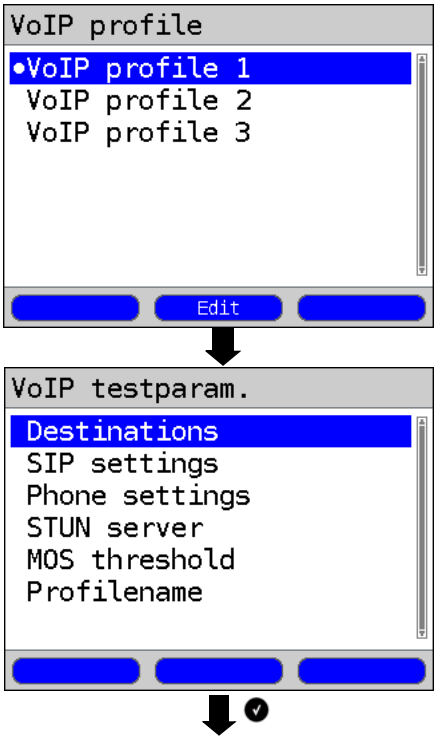
Protocol-independent parameters:

The ARGUS - Main menu



Select a profile for editing. The selected profile will be marked blue in the display. The default profile will be marked in the display with a ●. The ARGUS will use the parameters in the default (preset) profile to setup the xDSL connection and for the VoIP test.

The ARGUS uses the marked profile as the default profile and returns to the Settings menu.



A total of 3 user-defined VoIP profiles can be configured.

Edit the marked profile.

Edit the marked parameters if necessary

VoIP testparam.	Up to 3 VoIP profiles can be created. **<Edit>** Edit the selected profile.
Destination	The VoIP destination can be entered as a call number, an IP address or as an SIP URI. The ARGUS will save up to 10 destinations. To edit a destination, select a place in the list and open it with **<Edit>**. Entry using the numeric keypad. Use the softkey on the right to shift the keypad (the softkey on the right assumes a different meaning when pressed):
SIP	User name — User name for the registrar For information on the softkeys, see page 105
	Password — Password for the registrar For information on the softkeys, see page 105

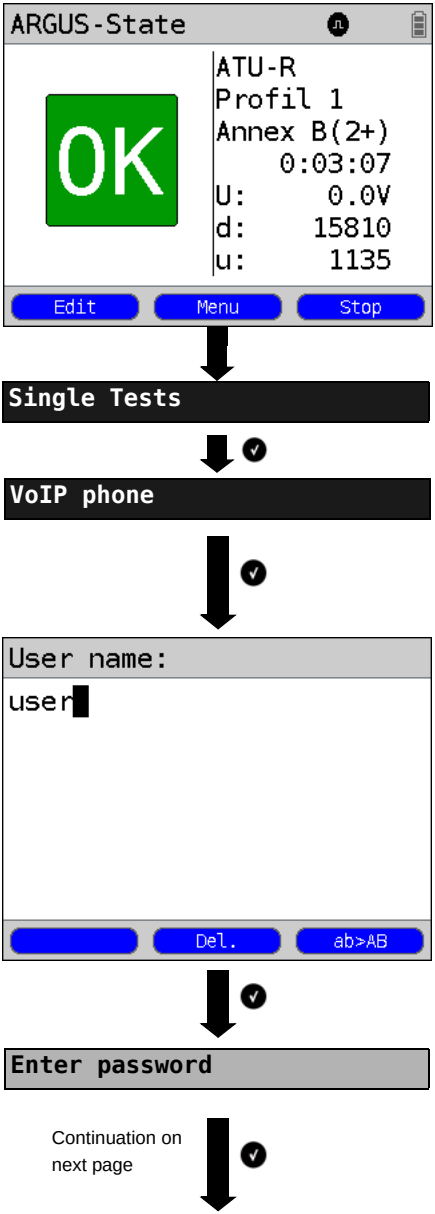
	Registrar server	Use Registrar. Setting: yes or no: If an Internet Telephony Service Provider (ITSP) is used (in such case, you will dial a normal telephone number), a regis-trar must be used. A registrar is not needed if you dial a VoIP phone directly, e.g. via its IP address or SIP-URI. Default setting: ***No*** Registrar Server Address of the registrar server
	Outbound proxy / SBC	(SBC = Session Border Controller) Use proxy: This setting specifies whether or not to use Outbound Proxy. Default setting: ***No*** Outbound Proxy / SBC Address of the outbound proxy server Outbound proxy/SBC Port Port of the outbound proxy serverRange: 0 to 65535 Default: ***5060***
	SIP domain	Configuration of the domain name for the “From” field in the SIP message (when using an Internet Telephony Service Provider (ITSP)).
	Listen port	The port used for the incoming SIP signaling Range: 0 to 65535 Default: ***5060***
	Remote port	The port used by the remote end. When using a registrar (see Registrar Server Setting on page 105), enter the port number of the Registrar / Proxy Server; otherwise, enter the port number of the remote end. Range: 0 to 65535 Default: ***5060***
	Authentication	Addtional xTU-R password used for proper authentication with the registrar. For information on the softkeys, see page 105
	Caller ID	Optional entry of any text desired which will then be displayed on the called party's equipment instead of the caller's phone number. For information on the softkeys, see page 105

	User agent	ID-string or terminal type which will be sent to the called party. Default setting: ***Argus141*** For information on the softkeys, see page 105	
	Type of service	Entry of the Type of Service. The Type of Service (ToS) is used to prioritorize the handling of VoIP data in the Internet (thus voice data is - when possible - transferred faster). Default setting: ***18*** For information on the softkeys, see page 105	
	Qualify	Specifies whether or not the proxy server's availability should be checked continuously. Default setting: ***No***	
	Registrar expire	Specifies how long a registration with the Registrar Server is valid. Range: 10 to 6000 seconds Default: ***3600 seconds***	
	Del.exist. registrar	Delete the registration with the Registrar Server. When set to "yes", the ARGUS will be exclusively registered with the registrar server. If it is set to "no", it will be put in the list of existing registrations. Default setting: ***yes***	
Phone Settings	Call acceptance	Selection of the type of call acceptance. If "Echo Test" is selected, incoming calls will be accepted automatically and the speech data will then be looped back. Default setting: ***manual***	
	Silence detection	If this is set to "on", ARGUS will not send speech packets when there is silence (a break in the speech). This can, however, lead to problems with the assignment of ports if there is a NAT router. Default setting: ***off***	
	Jitter buffer	Sets the size of the jitter buffer static or adaptive. Default setting: ***static***	
		Static jitter buffer:	Entry of the size of the static jitter buffer Range: 20 to 200 ms nominal: ***60ms***

		Adaptive jitter buffer:	Entry of the minimum (min) and maximum (max) sizes of the jitter buffer and the initial value (init). Range: 20 to 600 ms min: ***60ms*** init: ***60ms*** max:***120ms***
	Codecs	Preparation of a list of voice codecs to be used. If there are multiple codecs in the list, the priority is determined by the order in the list. Switch between softkey sets **<↓>** The marked codec will be moved down one place in the list. **<↑>** The marked codec will be moved up one place in the list. **<Insert>** A display of the still available voice codecs will open. If a voice codec is marked with a in this list (Codec Selection list), it will be added to the Codec Priority list (in the active list of voice codecs) **<Del.>** Delete the marked codec from the list Accept the codec priorities	
	DTMF settings	DTMF is a Dual-Tone Multi-Frequency dialing procedure. Mode: DTMF mode settings Choose one of the following settings automatic, SIP Info, RFC 2833 or inband. Default setting: ***automatic*** Duration: The VoIP DTMF Time setting Range: 40 to 1000 ms Up to 200 ms in increments of 10, 200 to 300 ms in increments of 20, 300 to 1000 ms in increments of 100. Default setting: ***80 ms*** Increase or decrease VoIP DTMF time.	

STUN server	Use STUN	Use STUN. Setting: yes or no. If there is a NAT router between the ARGUS and the next remote end (gateway), you must use STUN so that the ARGUS can determine which IP address the remote will receive. Default setting: ***No***
	STUN server	STUN server: Specifies the address of a STUN server which must be located in the same network (on the same level) as the remote end
MOS threshold	Entry of the MOS threshold: The MOS value (Mean Opinion Score) is an evaluation of the quality of the speech data. The MOS quality scale ranges from 5 (excellent) down to 1 (bad). The ARGUS will compare the MOS value of the currently active VoIP connection to the target MOS value and will display OK - if the current MOS value is at least as good as the target MOS value - or FAIL - if it is not. Range: 1.0 to 5.0 Default: ***4.0***	
Profile name	Enter or change the name of the edited VoIP profile	

Start VoIP telephony (In this example: ADSL access)



Access mode in the example: ATU-R

Setup the xDSL connection.
The profile used to set up the xDSL connection (in this example, Profil 1) will also be used for VoIP telephony.

<Edit> To edit the preset profile (in this example, Profil 1).
The access parameters for the connection are blocked. The test parameters can be configured.

Open the Main menu.

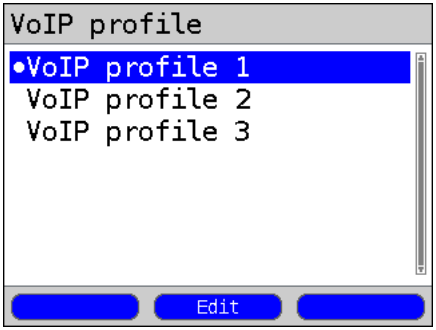
If no xDSL connection has been setup (by pressing **<Start>** in the state display), a connection will be setup automatically at this point using the default profile (see page 40).

Depending on the protocol and access: The ARGUS will display the user name saved in the profile for the PPP connection. The user name can, however, be changed.

If the user name is changed here, it will only be placed in temporary storage; the profile itself is not modified.

If you change the user name, you must enter the password again

The password entered here is not saved in the profile.

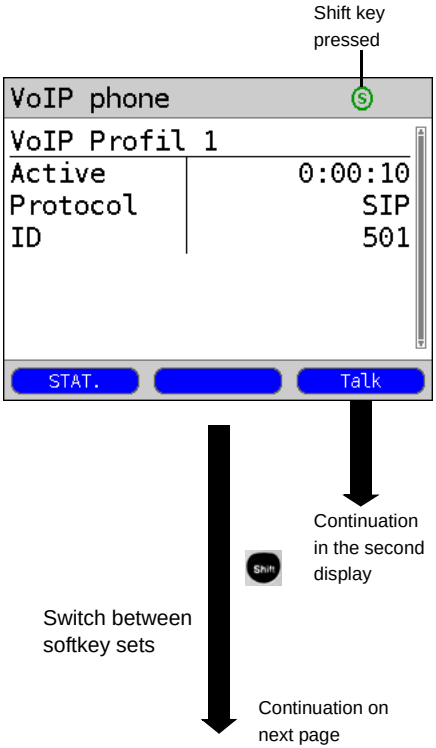


Select the VoIP profile (the default profile is marked with a ●).

<Edit> Edit the marked profile
For information on changing the individual parameters, see page 105.

Initializing

<DSL> Display
the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

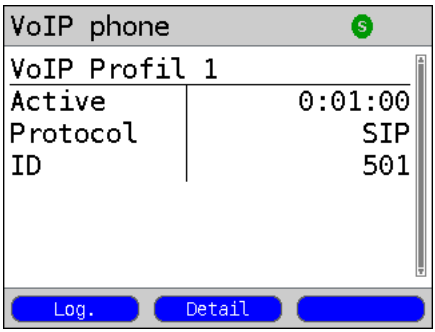


The ARGUS will display the VoIP profile used, the protocol and the user ID (own number). If a registrar is used, the ARGUS will display how long it has been registered.

<Stat.> Depending on the access mode and protocol, the ARGUS will display the BRAS, IP, PPP and WAN statistics.

<DSL> Display
the xDSL connection parameters, trace data, bit distribution, signal to noise ratio for each tone etc.

<Talk> Setting up call.



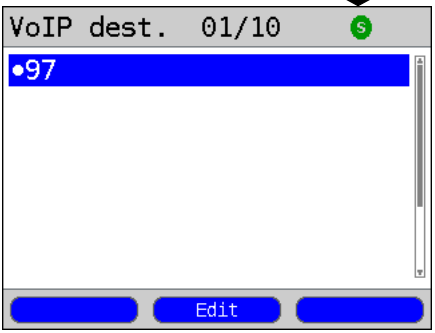
<Log.> Display the signaling protocol: SIP message status codes in numerical form (see Appendix).

<Time> Show times

<Detail> Will only be shown when the setting "Use registar“ is set to "yes“ (see page 105). Display the Registrar Details, Status, Registrar IP etc.

Display the xDSL connection parameters, trace data, bit distribution etc.

<Talk>

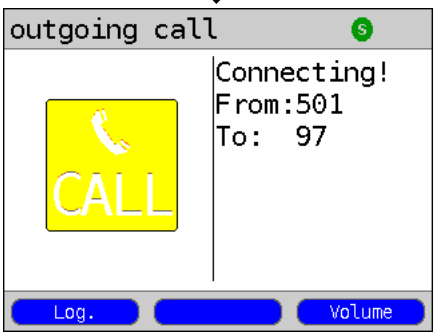


The ARGUS displays the destination address stored in the VoIP profile. There are a total of ten memory locations available for destination addresses.

<Edit> To edit the marked memory location: Open the marked destination address to edit it or to enter a new destination address in an "empty" memory location (see page 105).

or

Setup connection



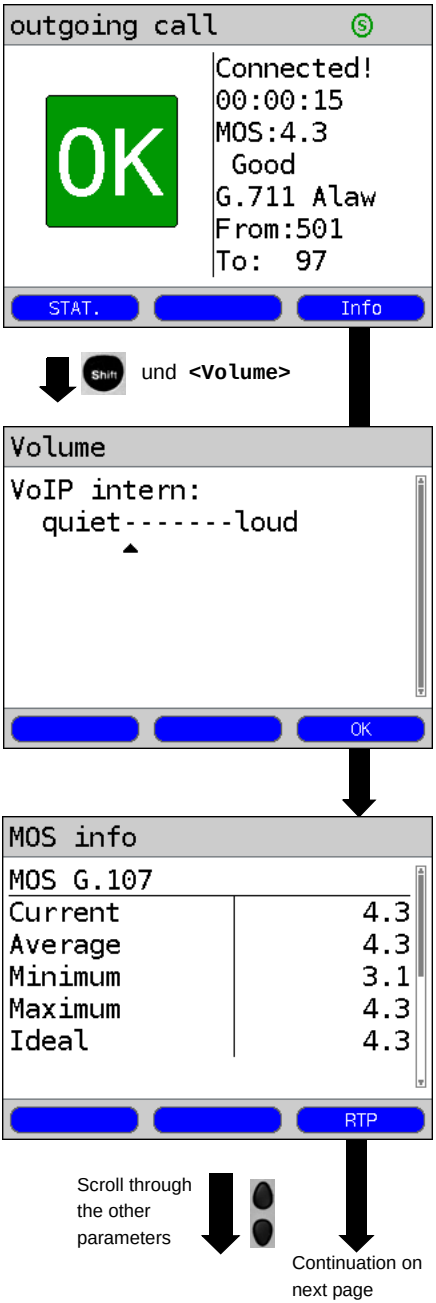
The ARGUS displays the "own number" (from: 501) and the number called (to: 84). The subscriber called has not yet accept the call; the display shows “Connecting!”. and the “yellow CALL symbol“.

Cancel setup

<Stat.> see above

<DSL> see above

Continuation on next page



The subscriber called has accepted the call; the display shows “Connected!”. The ARGUS will determine the MOS value and will indicate whether the speech quality meets or exceeds the MOS threshold set (see page 109) - i.e. will display "OK" or "FAIL". It will also show the duration of the connection and the currently used voice codec (in this example, G.711 a-law, see page 107).

<Stat.> Depending on the access mode and protocol, the ARGUS will display the BRAS, IP, PPP and WAN statistics.

<DSL> Display the xDSL connection parameters etc.

or Disconnect. The results can be saved, see page 92 "Sending the trace file to a PC".

Switching the softkey assignment **<Log.>** and **<Volume>**

<Log.> see above

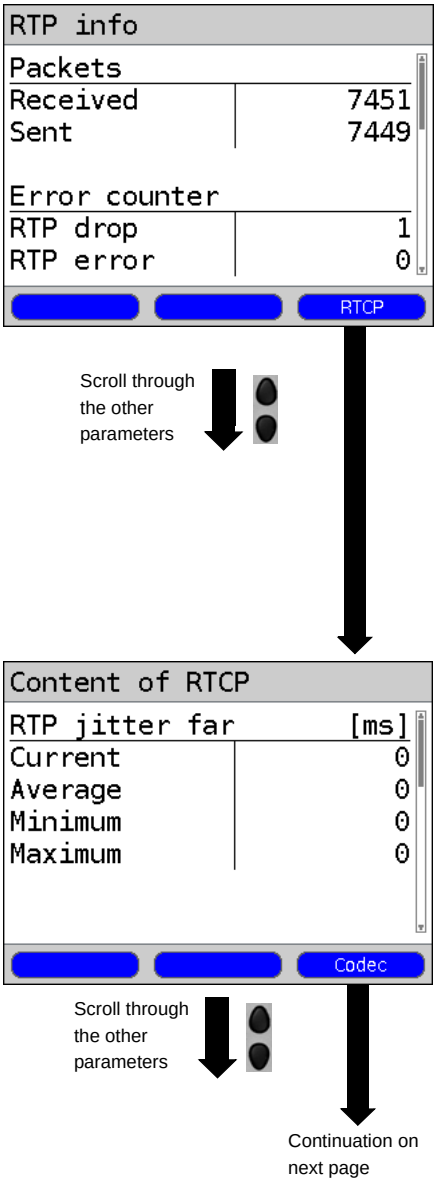
<Volume> Opens the volume setting.

<OK>: Settings confirmed

Display MOS info:

- the evaluation of the MOS value in accordance with ITU-T P.800 (in this
- example: Good),
- Current MOS (Cur. MOS)
- Average MOS (Avg. MOS) Min./max. MOS value
- Ideal MOS (MOS possible without interference, depends on Codec)
- Current and average R-Factor in accordance with ITU-T G.107

Return to the previous display



Display of the other VoIP results:

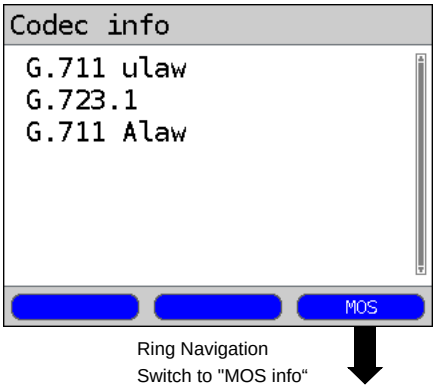
Packet statistics:

- packets received (Rx)
- packets sent (Tx)
- Error Counters:
  RTP drop
  RTP error
- RTP Jitter Rx:
  Current jitter
  Average jitter
  Minimum jitter
  Maximum jitter
- RTP packets lost (speech packets "Real time Transport Protocol“)
  (RTP Packet Loss)
  (Total, current, average, min. and max.)

Return to “outgoing call"

RTCP "Real time Transport Control Protocol“ Info:
Display the statistics sent from the remote end.

- Current jitter of the remote end (far)
- Average jitter of the remote end
- Minimum and minimum jitter of the remote end
- RTP packets lost (speech packets "Real time Transport Protocol")
  (RTP Packet Loss) of the remote end (far)
  (Total, current, average, min. and max.)
- the Network Delay calculated from the propagation time
  of the RTCP packets
  (Current, average, min. and max.)

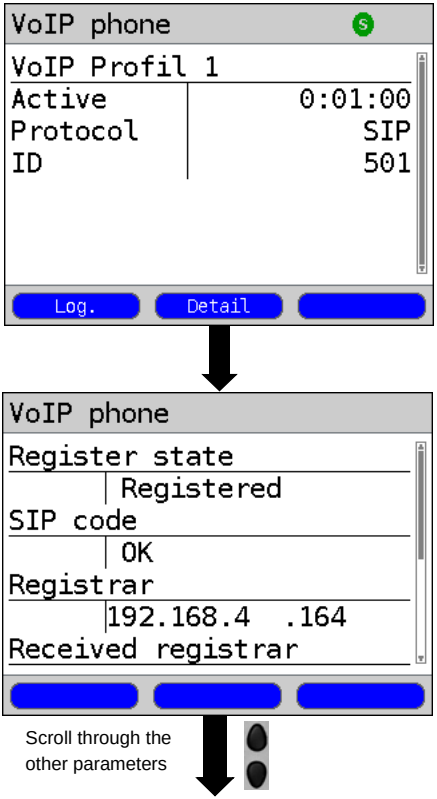


The ARGUS will display the codecs available at the remote end.

Return to the “outgoing call" display

<MOS> Open the “MOS info" display

The ARGUS remains registered with the registrar even after the connection is cleared down.



Before and after the connection is setup, the ARGUS will show the registration with the registrar (If Registrar set to "yes“). Press "Shift“ to display the **<Detail>** and **<Log.>** softkeys.

<Log.> Display the signaling protocol: SIP message status codes in numerical form (see Appendix).

<Time> Show times

<Detail> Will only be shown when the setting "Use Registar“ is set to "yes“ (see page 105). Display the Registrar Details, Status, Registrar IP etc.

<Reject> If the ARGUS is registered and is called, the softkey **<Reject>** will be displayed. The incoming call can be rejected.

<Accept> If the ARGUS is registered and is called, the softkey **<Accept>** will be displayed. The incoming call can be accepted.

An overview of the VoIP results

During and after a successful registration:

	Display / Meaning
SIP log	A log showing the SIP methods and status codes exchanged
Register state	The ARGUS shows all of the important registration and registrar info in the Register state display.

During a call or a connection:

	Display / Meaning
MOS threshold, Voice codec	Current **MOS threshold**, **voice codec** currently used
SIP log:	A log showing the SIP methods and status codes exchanged
INFO: MOS results:	**Threshold:** Display shows whether the value stayed within the preconfigured MOS threshold. **P.800:** Evaluation in accordance with P.800 **MOS value:** current / average / minimum **R factor:** current / average / minimum
INFO: RTP results:	**RTP packets:** received / sent **RTP jitter:** current / average / minimum *(Calculation in accordance with RFC3550 performed every second)* **RTP packet loss total number:** *(RTP packets not received)* **RTP packet loss:** current / average / minimum / maximum in percent **RTP drop:** RTP packets received, but rejected by the jitter buffer **RTP error:** defective RTP packets received
INFO: RTCP results: *(The content of the RTCP packets will be displayed if this is supported by the remote end!)*	**RTP jitter - remote end:** current / average / minimum / maximum **RTP packet loss - remote end:** current / average / minimum / maximum in percent **RTP packet loss - remote end, total number** **Network delay:** current / average / minimum *(Determined by exchanging RTCP packets)*

Clear down the connection, save and send log to PC

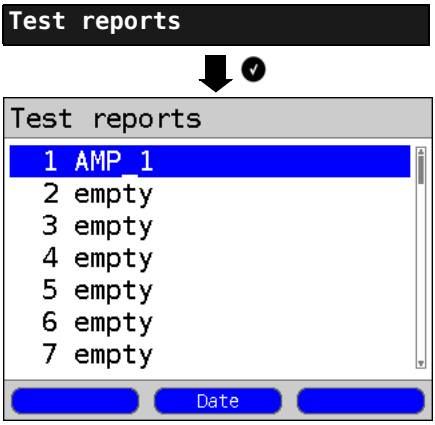
The connection is cleared down in the same manner as it is after an IP ping. However, pressing the "Cancel“ key once will only clear down the connection (if there is one). The results will be saved when the key is pressed again. The ARGUS however will remain registered with the Registrar so the ARGUS can still be called (an incoming call can be rejected or accepted). If the "Cancel“ key is pressed a second time, the registration is also terminated and you are given the opportunity to save the results again.
The Layer 1 connectivity originally setup for the VoIP connection remains.

Whenever the ARGUS offers to save the Log (in the internal memory of the ARGUS), you can instead send the log (Trace file) to the connected PC. For more information see IP ping which is similar.

10 Test reports

The saved test reports can be viewed either on the ARGUS display or on a PC. The test data can be sent to a Windows PC, where - among other things - a comprehensive test report can be generated using the WINplus or WINanalyse software.
The ARGUS saves the test results together with the date and the time (the ARGUS internal clock see page 124) in the sequentially numbered memory locations (1, 2, 3 etc.). When the parameters are rest to their default values, the stored test results will be deleted (see page 126).
Each item in the Test reports menu refers to a specific test report. Therefore, a window will open first showing a list of the reports saved.

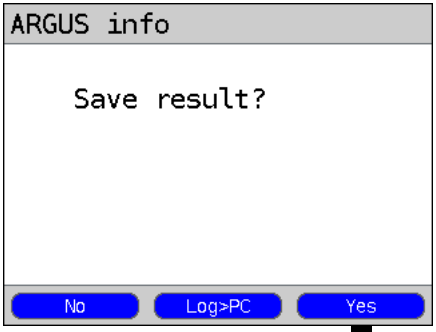
The ARGUS - Main menu



The ARGUS will display for each memory location the corresponding name of the memory location as well as the date and time. Empty memory locations are labeled as "empty“.

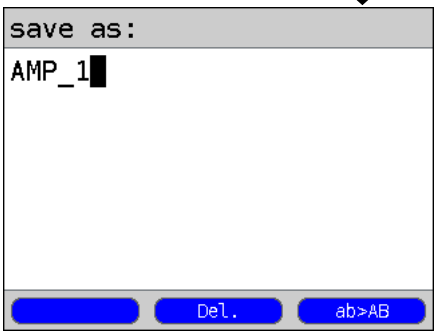
<Date>	The date and time that the results were saved will be displayed. The softkey **<Name>** will be displayed.
<Name>	Display the name of the memory location

10.1 Saving Test Reports



The results of a test can be saved when a test is completed or when closing a display showing test results.

The ARGUS saves the test result in the first available memory location. If the memory is full, you must manually select a memory location to be overwritten.



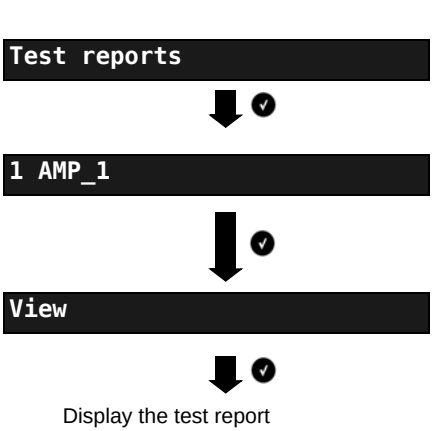
As names for the memory locations, the ARGUS will suggest either AMP_1, AMP_2, AMP_3 etc.

The name shown can accepted or a new one can be entered using the keypad: When the right softkey is pressed, it assumes a different meaning and thus influences the entries made from the keypad:

<12>ab>	entry of the digits 0 to 9 plus * and #
<ab>AB>	entry of the lowercase characters and @, /,- and . (e.g. to enter a “c” press the “2” on the keypad three times)
<AB>12>	entry of the uppercase characters and @, /,- and .
<Del.>	Delete the character before the cursor
	Move the cursor
	Do not save the results; return to the previous display.

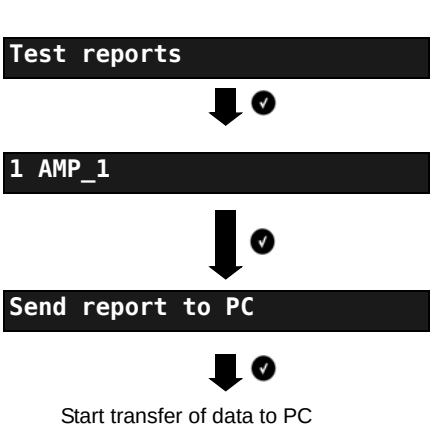
Store the result

10.2 Displaying the Saved Test reports


The ARGUS - Main menu
Test reports
1 AMP_1
View
Select a memory location
(In this example, the first memory location named AMP_1 has been selected).
Display the test report

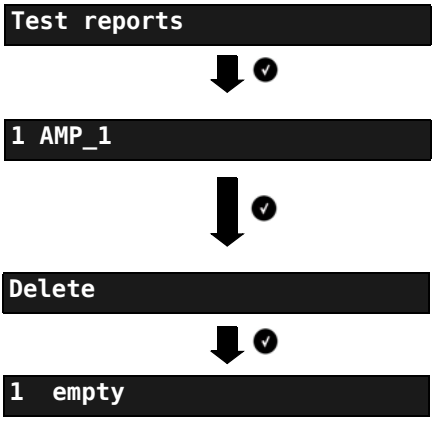
10.3 Test reports – Sending to a PC

The test reports can be sent to a PC, where they can be visualized and archived. Use the included USB cable to connect the ARGUS (ARGUS “USB” jack) to a USB jack on your PC (observe the settings for the PC interface, see page 125) and then start WINplus or WINanalyse on your PC.


The ARGUS - Main menu
Test reports
1 AMP_1
Send report to PC
Select a memory location
(In this example, the first memory location named AMP_1 has been selected).
Start transfer of data to PC

10.4 Deleting Test reports

The ARGUS - Main menu



Select a memory location
(In this example, the first memory location named AMP_1 has been selected).

Delete the test report stored in the selected memory location.

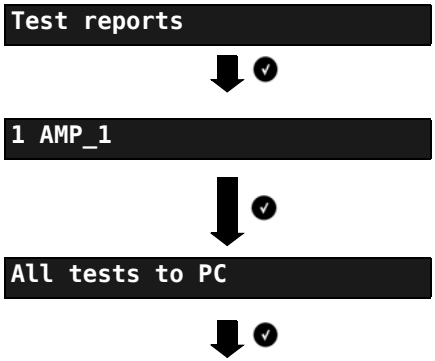
The memory location will again be marked as "empty".

For information on how to delete all test reports, see on page 126 “Reset All Parameters”.

10.5 Send All Test reports to a PC

The ARGUS sends all of the saved test reports to the PC. Connect the ARGUS to your PC and start WINplus or WINanalyse on the PC.

The ARGUS - Main menu



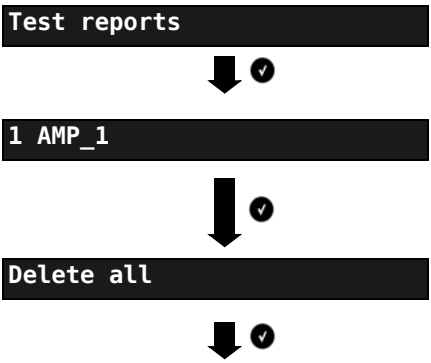
Select a memory location
(In this example, the first memory location named AMP_1 has been selected).

Start transfer of data to PC

10.6 Delete All Test reports

The ARGUS will delete all of the test reports stored in the internal memory.

The ARGUS - Main menu



Select any memory location (In this example, the first memory location named AMP_1 has been selected).

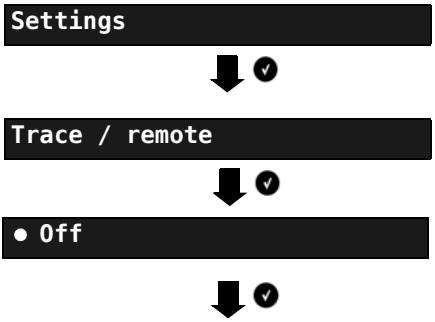
Press **<Yes>** to confirm that you really want to delete all 50 possible test reports.

11 ARGUS Settings - Device

The ARGUS can be configured to suit special requirements. The default (factory) settings can be restored by selecting "Reset“(see page 126).

11.1 Trace / remote

The ARGUS remains active and passes the recorded data online directly to the connected PC.



The ARGUS - Main menu

The marked Trace mode will be activated as the default setting.

The default (preset) Trace mode will be marked in the display with a ●.

Mark the desired Trace mode The selected Trace mode will be marked blue in the display.

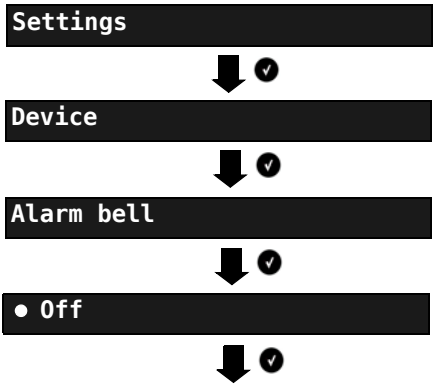
Open the next higher menu without making any changes.

Off	Basically, the data will not be sent to the PC. Defaults
Auto PC sync.	All data will always be sent to the PC (“PC” LED will flash). This setting remains active even after the ARGUS is switched on again.
Manual PC sync.	The data will be sent to the PC once (“PC” LED will flash). When the ARGUS is switched off and then back on again, Trace mode will be off.

If the ARGUS cannot send the data to the PC without errors, the “PC” LED will flash at 5 Hz (5 times per sec).

11.2 Device Settings

The procedure for configuring a device setting will be illustrated with a single example: "Alarm bell".



The ARGUS - Main menu

Using the cursor keys, select a setting (e.g. Alarm bell).

The default setting will be marked in the display with a ●.

Mark the desired setting. The selected setting will be marked blue in the display.

Open the next higher menu without making any changes to the settings.

The marked setting will be activated as the default setting.

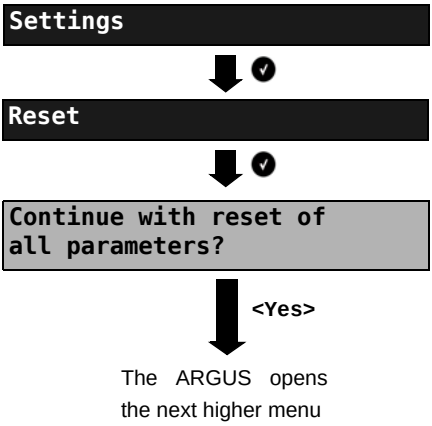
Settings	Explanation
Menu language	Selection of the menu language. Default setting: ***depends on country***
LCD lightness	Setting the display contrast: The contrast can be changed in 16 steps. The contrast can be increased or decreased using the cursor keys. The display shows a vertical arrow, which shows the current setting on a scale from low to high contrast.
Date / time	Entry of the date and time (initialisation of the internal clock) via the keypad. Use the vertical cursor keys to scroll from line to line in the display. The entered time will be continuously updated by the ARGUS's real time clock as long as the power is not interrupted. If the ARGUS switched off without batteries, the clock will still run a few more weeks on its own internal supply. If the backup supply is exhausted, the time will be undefined and must be set again.

Ringer volume	With this setting you can set the volume level used by the ARGUS to signal an incoming call. The initial volume level can be set. - Default setting: ***Level 1*** (very low) In addition, you can also set the final volume level. - Default setting: ***Level 7*** (very loud) When an incoming call is received, the ARGUS will begin signalling with the initial (very low) volume and increase the volume by one increment each time it signals until it has reached the final (very loud) volume.
Alarm bell	The ARGUS signals with an audible alarm in a variety of situations, e.g. when a bit error occurs in a BERT or the ARGUS has synchronized on an xDSL or when an error counter increments. When this parameter is set to "off“, all audible alarms are suppressed. Default setting: ***Off***
Power management	**-** Automatic turn off Set the how long the ARGUS can remain idle before it will switch to power down mode if it is not connected to the plug-in power supply. If power down mode is disabled, when the ARGUS is switched on, it will display a message warning that this will lead to a shorter battery life. Default setting: ***after 5 minutes*** **-** Lighting Sets how long the background lighting will remain on. When operated from the mains power, the background lighting will always remain on. When operating from the battery pack, the ARGUS switch off the background lighting after the set time. Default setting: ***off after 30 seconds***
Software option	Enabling a software option The associated software key must be entered via the keypad. Additional ARGUS options can be enabled if desired by entering the associated 20-place code on the keypad. To obtain this code, please contact us.

11.3 Reset All Parameters

The ARGUS will reset all of the parameters and settings to their default values.

The PPP user name, IP addresses, profile names and all of the test reports stored in the ARGUS will be deleted.



The ARGUS - Main menu

Security query

All the parameters will be reset to their default (preset) values.

Alternative operation:

and pressed one after the other: The ARGUS will immediately display the security query "Reset all parameters?“

12 Using the Battery Pack

Changing the battery pack

Switch the ARGUS off and disconnect the plug-in power supply. Afterwards, loosen the thumbscrew to release the battery pack.

Battery pack handling

The ARGUS may only be operated with the included battery pack. Connecting any other voltage supply to the battery pack contacts will damage the ARGUS.

- The supplied battery pack may only be charged in the ARGUS.
- Do not use the supplied battery pack in other devices.
- Recharge the battery pack fully at least once a month (even if the ARGUS is not used for a longer period of time).
- If the lithium-ion battery pack is stored, it should first be charged to between 40 and 60 % of its capacity. If the lithium-ion battery pack is stored for a longer period of time, it should be recharged to this level every six months.
- Please read the extensive notes on safety and the transport of the lithium-ion battery pack found in the section "Safety Instructions“.

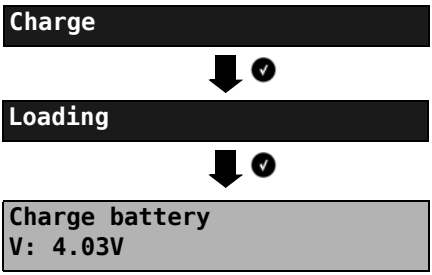
Automatic recharging of the battery pack when the ARGUS is switched off

The ARGUS automatically recharges the battery pack, if the ARGUS is connected to the plug-in power supply and is switched off and the battery pack voltage is too low. While charging, the ARGUS displays the message “Charge battery”. If you press and hold the power switch, the ARGUS will switch off before the battery pack are recharged. The ARGUS remains on after fully recharging the battery pack.

Charge battery

The ARGUS will display the current charge of the battery pack graphically, if no power supply is connected. In the LCD display, a battery symbol will begin to blink, when there is still approximately (depending on the mode of operation) 5 minutes reserve power. During this period, it is possible that there may be audible interference and in rare cases even malfunctions. Connect the power supply.

When the plug-in power supply is connected, the battery pack in the ARGUS can be fully recharged. It is not necessary to manually discharge the lithium-ion accumulators in the ARGUS battery pack. It may take up to 6 hours to fully recharge the battery pack.

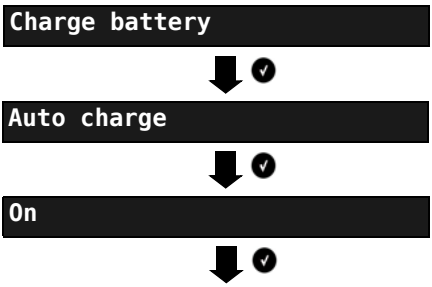


The ARGUS - Main menu

Connect the power supply!
Charging process begins.

The ARGUS will display the voltage while charging the battery pack.

Automatic recharging of the battery pack in the background (Auto charge)



The ARGUS saves the setting and returns to the next higher menu.

The ARGUS - Main menu

The ARGUS charges the battery pack automatically in the background when the plug-in power supply is connected if the battery voltage is too low.
(battery symbol shown on the display).

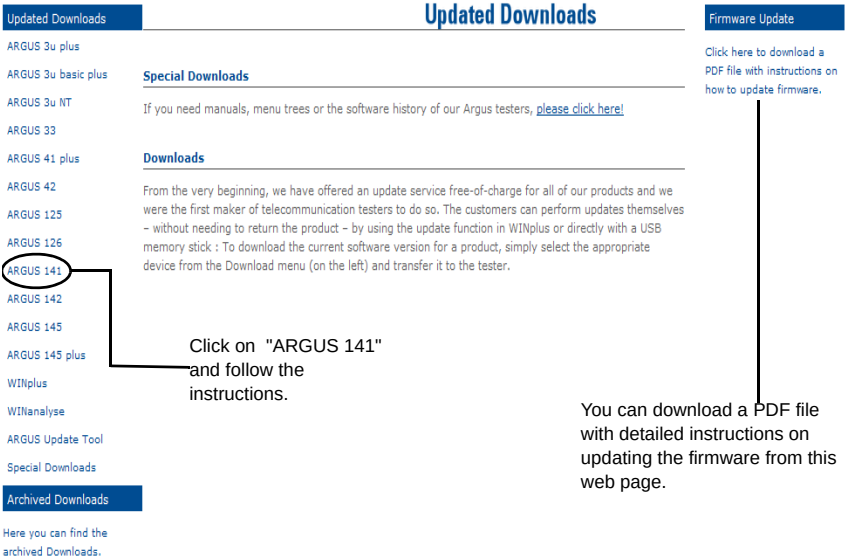
If the ARGUS is disconnected from the power supply before the battery pack is fully recharged, the ARGUS will not automatically begin to charge the battery pack again when it is reconnected to the power supply, since the battery voltage is no longer less than the threshold value.

13 Firmware Update

You can download a firmware file from www.argus.info/en/service free-of-charge and save it on your PC to later transfer to your ARGUS tester.
Open the Internet site www.argus.info/en:

Click on "Service".

Click on "to the download area ...".


Updated Downloads
ARGUS 3u plus
ARGUS 3u basic plus
ARGUS 3u NT
ARGUS 33
ARGUS 41 plus
ARGUS 42
ARGUS 125
ARGUS 126
ARGUS 141
ARGUS 142
ARGUS 145
ARGUS 145 plus
WINplus
WINanalyse
ARGUS Update Tool
Special Downloads
Archived Downloads
Here you can find the archived Downloads.
Updated Downloads
Special Downloads
If you need manuals, menu trees or the software history of our Argus testers, please click here!
Downloads
From the very beginning, we have offered an update service free-of-charge for all of our products and we were the first maker of telecommunication testers to do so. The customers can perform updates themselves – without needing to return the product – by using the update function in WINplus or directly with a USB memory stick : To download the current software version for a product, simply select the appropriate device from the Download menu (on the left) and transfer it to the tester.
Firmware Update
Click here to download a PDF file with instructions on how to update firmware.

Click on "ARGUS 141" and follow the instructions.

You can download a PDF file with detailed instructions on updating the firmware from this web page.

Important information regarding the ARGUS Firmware Update:

Do not, under any circumstances, start to update the firmware if the ARGUS is running on its battery pack. First connect the ARGUS to the plug-in power supply, before sending the firmware update file from your PC to the ARGUS.

An ARGUS USB cable is required to perform an upgrade (USB cable with a mini-USB plug). Save the configuration and test reports before beginning an upgrade.

Do not disconnect the ARGUS from the PC during the update.

Do not switch the ARGUS off while an update is being performed.

You must also pay attention to the messages on the ARGUS display – not just the instructions displayed by the Update Tool on the PC.

The update has not been successfully completed until the Update Tool displays a corresponding message on the PC and the ARGUS – after being automatically restarted by the Update Tool – shows the normal startup screen.

The ARGUS will not switch on until after you have clicked on one of the two buttons ("back to step 1" or "Exit program") on the Update Tool after the update has been completed.

14 Appendix

A) Acronyms

	A
AC	Alternating Current or Access Server
ADSL	Asymmetric Digital Subscriber Line
AMP	ARGUS Measurement Protocol
ANSI	American National Standards Institute
ATM	Aynchronous Transfer Mode
ATU-R	ADSL Transceiver Unit - Remote
Auto-MDI-X	Automatic Medium Dependent Interface Crossing
Avg	Average
	B
BR	Bridge
BRAS	Broadband Remote Access Server
	C
Codec	Coder-Decoder
CRC	Cyclic redundancy check
	D
DC	Direct Current
DE	Deutsch (German)
DHCP	Dynamic Host Configuration Protocol
DIN	Deutsches Institut für Normung (German Institute of Standardisation)
DMT	Discrete Multitone
DNS	Domain Name System
DS	Downstream Band
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
DTMF	Dual Tone Multi Frequency
	E
e.g.	exempli gratia (for example)
EG	Europäische Gemeinschaft (European community)
ElektroG	Elektro- und Elektronikgerätegesetz (German law)
EN	European Norm or English
EoA	Ethernet over ATM
ETSI	European Telecommunications Standards Institute
	F
FEC	Forward error correction
FS	Feature Set
FW	Firmware

	H
HEC	Header Error Checksum
HTTP	Hypertext Transfer Protocol
	I
IAD	Integrated Access Device
ID	Identifier
IEEE	Institute of Electrical and Electronics Engineers
INP	Impulse Noise Protection
IP	Intenet Protocol
IPCP	Internet Protocol Control Protocol
IPoA	Internet Protocol over ATM
IPoE	Internet Protocol over Ethernet
ISO	International Standardisation Organisation
ISP	Internet Service Provider
ITSP	Internet Telephony Service Provider
ITU	International Telecommunication Union
	L
L1	Layer 1 in OSI model
L2	Layer 2 in OSI model
L3	Layer 3 in OSI model
LAN	Local Area Network
LCD	Liquid Crystal Display
LCP	Link Control Protocol
LED	Light Emitting Diode
LLC	Low Layer Compatibility
	M
MAC	Media Access Control
MDF	Main Distribution Frame
MOS	Mean Opinion Score
MTU	Maximum Transmission Unit
	N
n/a	not available
n/r	not received
n/u	not used
NAT	Network Address Translation
NTBA	Network Termination Basic Access
	O
OSI	Open Systems Interconnection
	P
PABX	Private Automatic Branch Exchange
PADI	PPPoE Active Discovery Initiation

PADO	PPPoE Active Discovery Offer
PADR	PPPoE Active Discovery Request
PADS	PPPoE Active Discovery Session confirmation
PADT	PPPoE Active Discovery Termination
PAP	Password Authentication Protocol
PC	Personal Computer
PPP	Point-to-Point Protocol
PPPoA	Point-to-Point Protocol over ATM
PPPoE	Point-to-Point Protocol over Ethernet
PWR	Power
	Q
QLN	Quiet Line Noise
	R
RFC	Request for Comments
RJ	Registered Jack
RoHS	Restriction of hazardous substances
RTCP	RealTime Control Protocol
RTP	Real-Time Transport Protocol
Rx	Received
	S
SBC	Session Border Controller - Outbound Proxy
SIP	Session Initiation Protocol
SNR	Signal-to-Noise-Ratio
STB	Settop-Box
STUN	Session Traversal Utilities for NAT
	T
TCP	Transmission Control Protocol
ToS	Type of Service
TS	Technical Specification
Tx	Transceived
	U
UDP	User Datagram Protocol
URI	Uniform Resource Identifier
US	VDSL: Upstream Band
USB	Universal Serial Bus
	V
VC	Virtual Channel
VCI	Virtual Channel Identifier
VC-MUX	Virtual Circuit Multiplexing
VDSL	Very High Speed Digital Subscriber Line
VLAN	Virtual Local Area Network

VoIP	Voice over Internet Protocol (Voice over IP)
VPI	Virtual Path Identifier
VTU-R	VDSL Transceiver Unit - Remote
	W
WAN	Wide Area Network
WEEE	Waste Electrical and Electronic Equipment
	X
xDSL	general term for several DSL types
xTU-C	xDSL Transceiver Unit - Central Office
xTU-R	xDSL Transceiver Unit - Remote

B) Error message: PPP connection

Display on ARGUS	Description
External fault:	
Negotiation err	Cannot negotiate the network protocol for PPPD, so the remote site is not reachable.
Idle release	Connection was terminated, since there was no activity.
Time out rel	Connection was terminated, since the maximum connection time elapsed.
Echo req. error	Remote site did not answer echo requests so the connection has been terminated. (PPP connections are tested at regular intervals by sending echo requests to the remote site.)
Hanging up rel	Disconnected by remote site.
Loopback error	The setup of the PPP connection was cancelled, since a loopback was detected.
Authent. Error	Authentication error: Wrong user name or password - rejected by remote site.
PADO timeout	No PADO packet received.
PADS timeout	No PADS packet received.

C) Error message: Download test

Display on ARGUS	Description
External fault:	
Http redir.error	Fault: Too many HTTP redirects.
Http no response	No answer from HTTP server.
Http serv.error	HTTP server has returned an error. (for details see the table below "HTTP Error Messages")
Http encod.error	Due to an encoding problem, data transfer with HTTP is not possible.
Network error	Network error
URL error	Fault: No HTTP URL specified.
Socket error 2	Error when connecting a socket. The server's HTTP service is not available.
Http Head.error	Error in the header of the requested HTTP file.
Unknown address	Unknown host address. Possible cause: Error in the address entered, DNS resolution not working or network not accessable.
Unknown download error	Unknown download error

D) HTTP status codes:

Display on ARGUS: Code No.	Meaning
100	Client should continue its request.
101	The protocol is being changed at the Client's request.
200	The Client's request has succeeded.
201	The Client's request that a new document be created was successful.
202	The Client's request has been accepted for processing.
203	The Client's request will be answered with information from a source other than the server.
204	The Client's request was successful. The server sends [no content] only the HTTP header.
205	The Client's request was successful. The server [resets content] sends a new HTTP body.
206	The Client's request was successful. The server sends only part of the requested document [partial content].
300	The request was not precise enough so multiple documents have been returned.
303	The requested resource has been found at a different URI and should be retrieved from there.
304	The requested document has not been changed in the interim.
305	The requested document must be retrieved from a proxy instead of from the server.
307	The requested resource has been temporarily relocated to a different URI [temporary redirect].
400	Syntax error in the Client's request [Client error].
401	The request requires user authentication.
402	Payment is required to process this request.
403	The Client's request has been refused. (e.g. because authentication failed.)
404	The requested document was not found (e.g. because of an error in the URL entered or while the document is no longer available).
405	The method specified by the Client in its request is not allowed by the server.
406	The requested document in a format that is not supported by the Client.

407	The request requires that the Client authenticate itself with a proxy.
408	The Client did not place its request within the time allowed by the server [Request Timeout].
409	Due to a conflict (e.g.another request) the Client's request cannot be completed by the server.
410	The requested URL is [gone] no longer available on the server.
411	The Client sent data to the server without a defined Content Length.
412	The preconditions in the Client's request could not be satisfied by the server.
413	The Client's request has been refused by the server because the request entity is too large.
414	The Client sent a URL to the server that is too large (e.g. because of the form values contained).
415	The Client's data is not supported by the server.
416	The range (in a document) requested by the Client does not exist.
417	The server could not (or did not wish to) satisfy the Client's expectation given in the Expect request header field.
424	For aesthetic reasons, the requested document will not be sent by the server.
500	Due to an unexpected condition, the server cannot fulfill the Client's request (e.g. faulty configuration, missing or wrong CGI program).
501	The server does not support the function required to fulfill the Client's request.
502	The server received an invalid response from an upstream server or proxy which it accessed in attempting to fulfill the request.
503	The server is currently unable to handle the request due to a temporary overloading of the server.
504	The Client's request (of a gateway or proxy) did not receive a response within the specified time.
505	The server does not support the HTTP protocol version that was used in the Client's request.

E) General Error Messages

Display on ARGUS	Description
Prot. not supp.	The protocol (IP, PPPoE, etc.) is not supported in the selected mode.
Unknown error	Unknown error occurred.
No PPP connec.	No PPP connection can be setup.
Test aborted	Test aborted by user.
Pingstart error	Error when starting the Ping test.
Fault: PPP connection	Unexpected termination of the PPP connection.
Unexp. PING end	Unexpected termination of the Ping test.

F) VoIP SIP status codes

SIP requests:

The six basic requests / methods:

INVITE Invite a user to a session (call - initiates a session)

ACK Acknowledge an INVITE request

BYE Terminate a session (hangup)

CANCEL Terminates the setup of a connection

REGISTER Provides subscriber data (host name and IP address)

OPTIONS Supplies information regarding the functions supported by the other SIP telephone

SIP responses:

SIP responses are answers to SIP requests. There are six basic types of SIP responses with numerous sub-responses:

1xx Informational responses (180 indicates for example that the phone of the party called is ringing)

2xx Reports that the request has been successful

3xx Redirection responses

4xx Client failure responses

5xx Server failure responses

6xx Global failure responses

Display on ARGUS: Code No.	Meaning	Explanation
100	Trying	The ARGUS is attempting to setup a call.
180	Ringing	The phone at the other end is ringing.
181	Call Being Forwarded	The call is being forwarded.
182	Call Queued	The call is in a wait loop.
183	Session Progress	The call is being setup.
200	OK	Everything is all right.
202	Accepted	Connection has been accepted.

300	Multiple Choices	There is no unique destination address for the remote end. Please select one.
301	Moved Permanently	Calls are being permanently forwarded.
302	Moved Temporarily	Calls are being temporarily forwarded.
305	Use Proxy	A proxy must be used.
380	Alternative Service	Alternative service
400	Bad Request	The request is not OK.
401	Unauthorized	You are not authorized.
402	Payment Required	Payment is required.
403	Forbidden	This is not permitted.
404	Not Found	The remote end was not found or does not exist.
405	Method Not Allowed	The method (e.g. SUBSCRIBE or NOTIFY) is not permitted.
406	Not Acceptable	The options used in the call are not supported.
407	Proxy Authentication Required	The proxy must be authenticated.
408	Request Timeout	The time for the request has been exceeded (timeout).
409	Conflict	There is a conflict.
410	Gone	The subscriber is no longer reachable here.
411	Length Required	The length must be supplied.
413	Request Entity Too Large	The values are too long.
414	Request URI Too Long	The URI is too long. (Destination address)
415	Unsupported Media Type	The codec is not supported.
416	Unsupported URI Scheme	The URI scheme is not supported. (Destination address)
420	Bad Extension	The extension is wrong.
421	Extension Required	An extension is necessary.
423	Interval Too Brief	There is a problem with the SIP parameters. (Register Expire is too short)
480	Temporarily Unavailable	The subscriber is currently not reachable.
481	Call/Transaction Does Not Exist	This connection does not exist (any longer).
482	Loop Detected	A redirection loop has been detected.
483	Too Many Hops	Too many redirects.
484	Address Incomplete	The SIP address is incomplete or faulty.
485	Ambiguous	The SIP address is not unique.
486	Busy Here	The destination is busy.
487	Request Terminated	The request has been terminated.
488	Not Acceptable Here	The call cannot be accepted.
491	Request Pending	A request is waiting.

493	Undecipherable	Decryption error.
500	Server Internal Error	Internal error in the server.
501	Not Implemented	The requested method (functionality) has not been implemented.
502	Bad Gateway	The gateway is bad.
503	Service Unavailable	The service is not available.
504	Server Time-Out	The gateway did not respond in time.
505	Version Not Supported	The SIP protocol version is not supported.
513	Message Too Large	The message length is too long. Use TCP.
600	Busy Everywhere	All terminals are busy at the remote end.
603	Declined	The system at the remote end refused to accept the call.
604	Does Not Exist Anywhere	This user does not exist any longer.
605	Not Acceptable	SIP request not acceptable.

G) Software Licenses

The ARGUS firmware includes code from what are known as Open Source packages, which have been published under various licenses (GPL, LGPL, MIT, BSD, etc.).
Additional information can be found - if requested in your order - on the CD-ROM included in the package (see Software_License.htm) or can be viewed at http://www.argus.info/web/download/Software_License.htm.
In the event that you are interested in the sources licensed under GPL or LGPL, please contact support@argus.info. A machine-readable copy of the source code can be obtained from intec Gesellschaft für Informationstechnik mbH for a minimal fee - to cover the cost of physically copying the code. This offer is valid for 3 years.